SITE INVESTIGATION AND CORRECTION PLAN

Stanford Avenue Site
Los Angeles, California

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Prepared for
General Electric Company

October 1983

Brown and Caldwell

DRAFT

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STANFORD AVENUE SITE
SITE INVESTIGATION AND CORRECTION PLAN

This site study is conducted to define the distribution of polychlorinated biphenyls (PCBs) at the site located at 6900 Stanford Avenue, Los Angeles, California (See Figure 1). Data and information gathered from the study will provide a sound basis to develop an approved correction plan for the site. This site investigation and correction plan report is prepared in response to the instructions given in Los Angeles County Department of Health Services letter of April 4, 1983, and subsequent discussions with the County's officials. Details of the instructions and requirements are presented in the letters which are enclosed in Appendix A.

SITE INVESTIGATION

This section presents results of PCB analyses samples collected during the investigation period as well as hydrogeologic and soil information of the site. In addition, the County's data on samples collected in April are also presented.

Extent of PCB Distribution

Figure 2 presents a summary of sampling locations on the site and the County's data. In general, sampling work was conducted in three areas: railroad track area, asphalt pavement area, and facility buildings.

County's Data. In March 1983, officials of Los Angeles County Department of Health Services inspected the facility and subsequently took soil, sludge, liquid and dust and dirt samples in suspected areas. Laboratory results indicate PCB concentrations ranged from 13 ppm to 1,290 ppm. Details of the County's data are also presented in Appendix A.

Railroad Track Area. Surface (on the ground) and shallow subsurface (below the ground and within the 24-inch depth) soil samples were collected at 48 locations in the railroad track area. Subsurface boring samples (below the ground and within the 20-foot depth) samples were collected at eight locations. Tables 1 and 2 list locations of surface and shallow subsurface sampling and the subsurface boring, respectively. Surface and shallow subsurface samples were collected using a hand-drive sampler according to the procedures presented in the work plan of Appendix B. Subsurface boring samples were collected in a drive sampler through hollow-stem augers to define the vertical distibution of PCBs. Attempts were made to take subsurface boring samples at those locations that

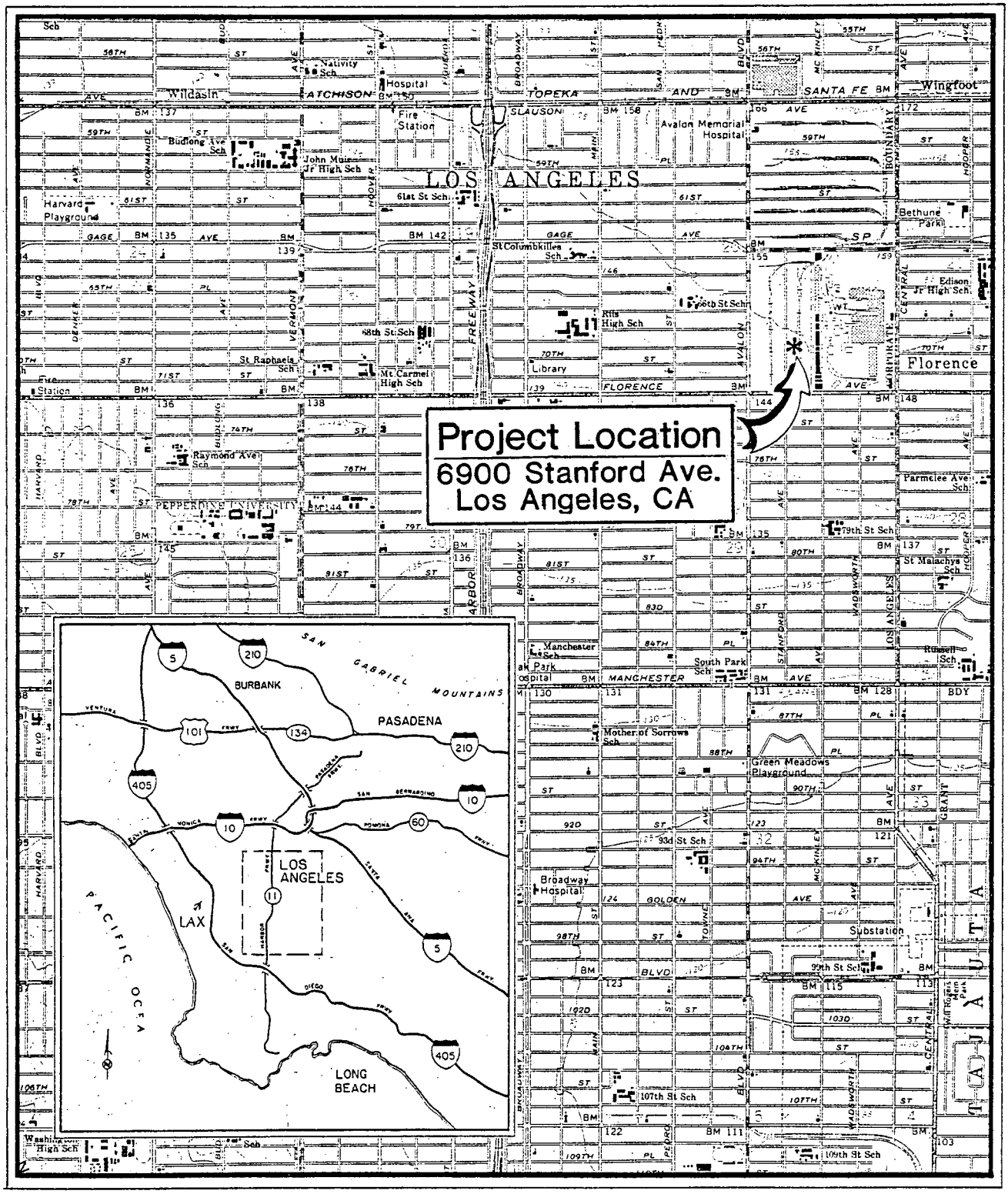

Figure 1 Location and General Vicinity Map

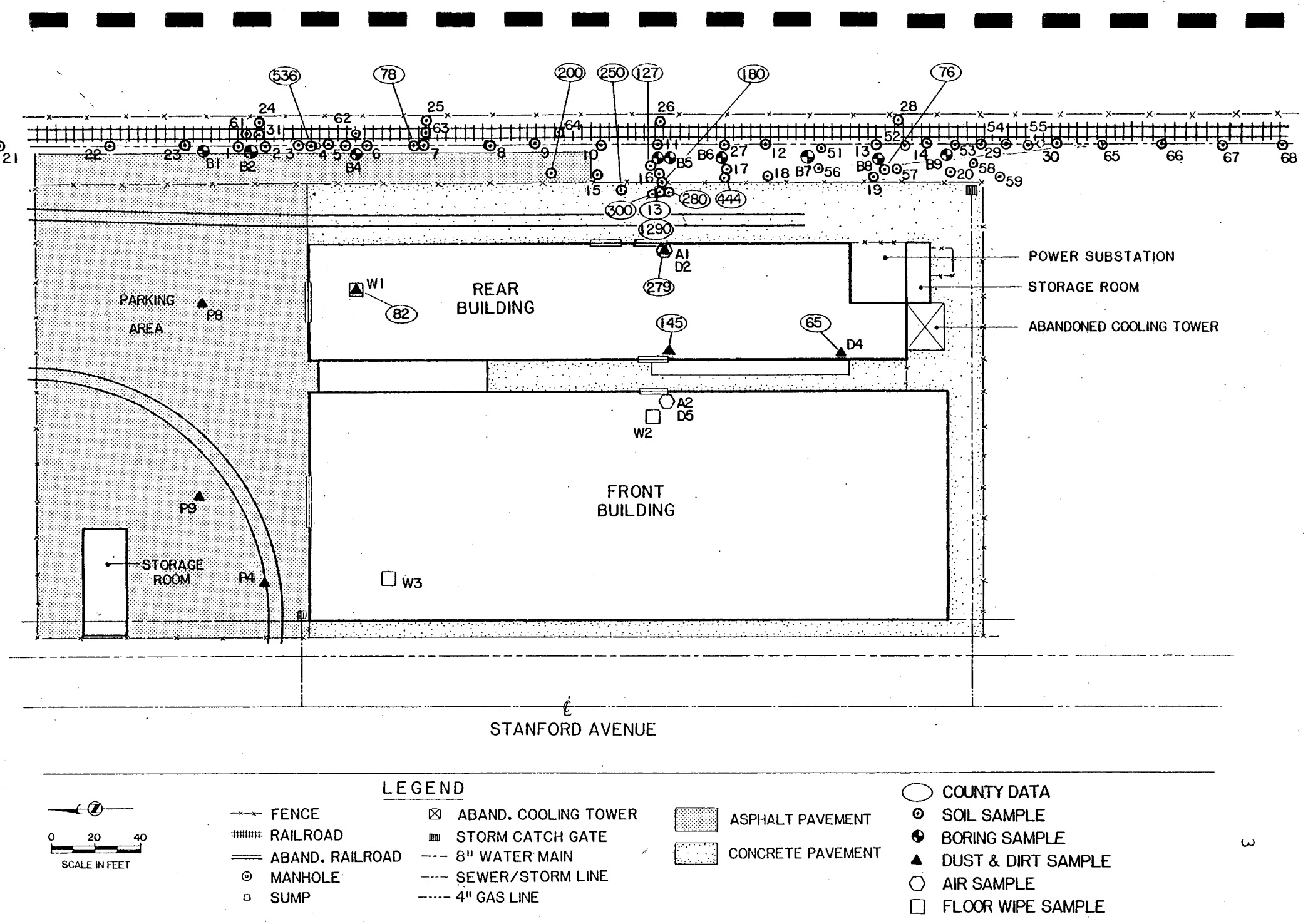

Figure 2 Sampling Locations on Site

Table 1 Locations of Surface and Shallow Subsurface Sampling and Sample Descriptions

Number	Location	Sample description
1	180 feet NORTH of sump 3.3 feet EAST of old fence	Bare sand, no stains
2	171.5 feet NORTH of sump 2.6 feet EAST of old fence	Bare sand, no stains
3	160 feet NORTH of sump 2.9 feet EAST of old fence	Sand with crabgrass, no stains
4	144 feet NORTH of sump 3.3 feet EAST of old fence	Bare sand, oil stained
5	136 feet NORTH of sump 2.8 feet EAST of old fence	Bare sand, oil stained
6	127.5 feet NORTH of sump 2.3 feet EAST of old fence	Bare sand, oil stained
7	100 feet NORTH of sump 2.1 feet EAST of old fence	Bare sand, clear and loose on oil stained
8	75 feet NORTH of sump 2.3 feet EAST of old fence	Bare sand, oil stained
9	56 feet NORTH of sump 3.5 feet EAST of old fence	Bare sand, no stains
10	25 feet NORTH of sump 16.8 feet EAST of fence	Bare sand, no stains
11	3.5 feet SOUTH of sump 16.8 feet EAST of fence	Bare sand, no stains
12	51.5 feet SOUTH of sump 17 feet EAST of fence	Bare sand, no stains
13	99.5 feet SOUTH of sump 18.1 feet EAST of fence	Bare sand, no stains
14	124.5 feet SOUTH of sump 17.7 feet EAST of fence	Bare sand, no stains
15	28 feet NORTH of sump 3.7 feet EAST of fence	Much crabgrass, no stains
16	1 foot SOUTH of sump 4.4 feet EAST of fence	Much crabgrass, no stains
17	25 feet SOUTH of sump 4.7 feet EAST of fence	Bare sand, no stains
18	51.5 feet SOUTH of sump 3.8 feet EAST of fence	Bare sand, no stains
19	95.5 feet SOUTH of sump 5.5 feet EAST of fence	Much crabgrass, no stains
20	134 feet SOUTH of sump 5.8 feet EAST of fence	Bare sand in depression, heavily oil stained
21	291.6 feet NORTH of sump 37.5 feet EAST of fence	Sand with crabgrass, no stains
22	243.8 feet NORTH of sump 2.6 feet EAST of old fence	Sand with crabgrass
23	206.5 feet NORTH of sump 3.1 feet EAST of old fence	Bare sand, oil stained
24	171.8 feet NORTH of sump 14 feet EAST of old fence	Bare sand, heavily oil stained

Table 1 Locations of Surface and Shallow Subsurface Sampling and Sample Descriptions (continued)

Number	Location	Sample description
25	97.3 feet NORTH of sump 14.4 feet EAST of old fence	Bare sand, heavily oil stained
26	4.5 feet SOUTH of sump 28.3 feet EAST of fence	Bare sand, no stains
27	26 feet SOUTH of sump 15.3 feet EAST of fence	Light brown stain, sandy dry soil
28	110.2 feet SOUTH of sump 28.7 feet EAST of fence	Clean sandy soil
29	152.7 feet SOUTH of sump 17.1 feet EAST of fence	Light stain, sandy soil
30	189 feet SOUTH of sump 2.7 feet EAST of block wall	Light stain, sandy soil
31	171.8 feet NORTH of sump 9 feet EAST OF old fence	Dark stain, sandy soil
51	77.5 feet SOUTH of sump 16 feet EAST of fence	Sand with crabgrass
52	113.5 feet SOUTH of sump 17.5 feet EAST of fence	Sand with crabgrass
53	140.5 feet SOUTH of sump 17 feet EAST of fence	Sand with crabgrass
54	165.5 feet SOUTH of sump 2.5 feet EAST of block wall	Bare sand, oil stained
55	177.5 feet SOUTH of sump 2.5 feet EAST of block wall	Bare sand, oil stained
56	72.5 feet SOUTH of sump 5.5 feet EAST of fence	Sand with crabgrass
57	108.5 feet SOUTH of sump 6 feet EAST of fence	Bare sand, no stains
58	145.5 feet SOUTH of sump 9.5 feet EAST of fence	Sand with crabgrass
59	154.5 feet SOUTH of sump 1.1 feet EAST of fence	Bare sand, oil stained
61	198 feet NORTH of sump 23 feet EAST OF fence	Bare sand, oil stained
62	130 feet NORTH of sump 9 feet EAST of old fence	Bare sand, oil stained
63	97.3 feet NORTH of sump 23 feet EAST of fence	Bare sand, oil stained
64	42 feet NORTH of sump 23 feet EAST of fence	Sand with crabgrass
65	209 feet SOUTH of sump 2.7 feet EAST of block wall	Bared dirt, oil stained
66	234 feet SOUTH of sump 0.5 feet EAST of block wall	Gravel dirt, oil stained
67	25.9 feet SOUTH of sump 4.5 feet EAST of block wall	Gravel dirt
68	284 feet SOUTH of sump 1.5 feet EAST of concrete pad	Gravel dirt

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Table 2 Locations of Soil Borings

Borehole number	Location
B-1	198 feet NORTH of sump 14 feet EAST of fence
B-2	176 feet NORTH of sump 15 feet EAST of fence
B-4	130 feet NORTH of sump 14 feet EAST of fence
B-5	1 foot SOUTH of sump 10 feet EAST of sump
B-6	25 feet SOUTH of sump 10 feet EAST of fence
B-7	8 feet SOUTH of sump 13 feet EAST of fence
B-8	99.5 feet SOUTH of sump 14.5 feet EAST of fence
B-9	133 feet SOUTH of sump 13 feet EAST of fence

showed higher PCB concentrations. Because of the presence of high-voltage power lines above the fence line and at one cross location, and also the presence of a buried sewer line lying parallel to the railroad track, certain sample locations do not exactly correspond to planned locations. However in such cases, samples were taken as close to the locations as possible. Details of the sampling procedures and analytical methods are presented in the follow-up work plan of Appendix B and drilling log sheets of boreholes are enclosed in Appendix C.

Analytical results of soil samples are presented in Tables 3 and 4. Table 3 presents data on surface and shallow subsurface soil samples and Table 4 presents PCB concentrations in subsurface soil samples. Laboratory reports containing these data are enclosed in Appendix D. These data are also plotted on Figure 3 to present an overview of the PCB distribution in the railroad track area. As shown, the area that lies between the west edge of railroad tie and the east edge of the asphalt and concrete pavement areas may contain PCB concentrations greater than 50 ppm. To further illustrate the lateral and vertical extent of PCB distributions, the site is divided into 11 areas for further discussion.

Area 1 is partially covered with grass. This area lies between the mid-point of Sample Nos. 22 and 23, and the mid-point of Sample Nos. B1 and 1. Within this area, there are two sampling points: Numbers 23 and B1. Data on Sample No. 23 show 200 ppm of Aroclor 1260 in the top 6 inches of soil and 17 ppm in the next 6-inch sample. All subsurface samples taken from Boring No. 1 contain Aroclor 1260 concentration of less than 10 ppm. Therefore, it is determined that below the top 6-inch soil depth, PCB concentrations are less than 50 ppm.

Area 2 is located south of Area 1. This area has few depressions on the ground that are highly stained with oil. No Aroclor 1260 was identified in this area, instead, Aroclor 1242 has been found. PCB concentrations from surface samples range from 18,000 to 27,000 ppm. Both samples were taken from the depression areas. Although the ground surface contains high PCB concentrations, PCBs attenuate to concentrations of less than 50 ppm at a depth of 4 feet based on the results of Boring No. 2.

Table 3 PCB (Aroclor 1260) Concentration in Surface and Shallow Subsurface Soil

Sample Location	Depth, feet below ground surface	Concentration ppm
1	0-0.5	18,000[a]
	0.5-1	27,000[a]
2	0-0.5	27,000[a]
	0.5-1	32,000[a]
	1-1.5	11,000[a]
	1.5-2	32,000[a]
5	0-0.5	1,800
	0.5-1	5,500
7	0-0.5	400[a]
		340
9	0-0.5	4,100
10	0-0.5	120
	0.5-1	130
11	0-0.5	8
12	0-0.5	93
	0.5-1	840
13	0-0.5	8,300[a]
		8,700
14	0-0.5	1,500[a]
		2,400
15	0-0.5	1,100
16	0-0.5	2,200
	0.5-1	8,700
17	0-0.5	12,000
	0.5-1	56,000
	1-1.5	17,000
	1.5-2	2,200
18	0-0.5	2,100
	0.5-1	8,200
19	0-0.5	800
20	0-0.5	1,100
	0.5-1	16,000
22	0-0.5	21
	0.5-1	3
23	0-0.5	200
	0.5-1	17
24	0-0.5	< 1
	0.5-1	< 1
25	0-0.5	< 1
27	0-0.5	23
	0.5-1	15
28	0-0.5	48
	0.5-1	8.4
29	0-0.5	4,000[a]
		3,500
30	0-0.5	150
	0.5-1	0.6
31	0-0.5	190[a]
	0.5-1	9.1
51	0-0.5	37
52	0-0.5	240[a]
		920
53	0-0.5	150[a]
		670
	0.5-1	30[a]
		220
56	0-0.5	650
57	0-0.5	3,100[a]
		16,000
58	0-0.5	160[a]
		170

Table 3 PCB (aroclor 1260) Concentration in Surface and Shallow Subsurface Soil (continued)

Sample Location	Depth, feet below ground surface	Concentration ppm
	0.5-1	15[a]
		33
61	0-0.5	18
63	0-0.5	77[a]
		14
64	0-0.5	43
65	0-0.5	460
66	0-0.5	200
68	0-0.5	19

[a]Aroclor 1242

Table 4 PCB (Aroclor 1260) Concentration in Subsurface Soil

Depth, feet below ground surface	Aroclor 1260, ppm for boring location indicated							
	B1	B2	B4	B5	B6	B7	B8	B9
0.5-1	-[b]	-	-	-	-	-	-	72[a] 210
1-1.5	9.9	16,000[a]	5,500[a] 140	1.6	130	<1	<1[a] 3	-
1.5-2	-	-	-	-	-	-	-	2
2-2.5	9.6	100[a]	1.5[a] 1.1	2.9	2.6	<1	9[a] 1	-
2.5-3	-	-	-	-	-	-	-	<1
3-3.5	7.0	1,000[a]	8.6[a] 2.1	<1	<1	8.5	<1	-
4-4.5	-	2.4[a]	-	-	-	-	-	-
4.5-5	-	-	-	-	-	-	-	<1
5-5.5	<1	2.9[a]	<1	4.5	-	<1	<1	-
6.5-7	-	37[a]	-	-	<1	-	-	-
7.5-8	<1	-	<1	<1	-	<1	<1	-
9.5-10	-	5.2[a]	-	-	<1	-	-	-
10.5-11	<1	-	-	<1	-	-	<1	<1
14-14.5	-	-	-	-	<1	-	-	-
14.5-15	-	<1	-	-	-	-	-	-
15.5-16	<1	-	-	-	-	-	<1	<1
19.5-20	-	<1	-	-	<1	-	-	-
20.5-21	<1	-	-	-	-	-	-	-

[a]Aroclor 1242.
[b]Either no sample or no analysis

Area 3 is highly stained with oils and has no grass. It is not an extension of Area 2 because the manhole area is at the higher elevation. PCB concentrations of surface samples range from 120 to 4,100 ppm. As indicated by the vertical distribution of PCBs for samples taken from Boring No. 4, the concentration of PCB attenuates to less than 50 ppm at depths greater than 2 feet.

Area 4 is completely covered with grass. The area near the fence is accumulated with dirt and debris. As a result of these accumulations, the western portion is elevated higher than the eastern portion. The surface concentration of PCB is 1,100 ppm. By comparing results of Boring No. 4, which show a dramatic decrease in PCB concentration from 5,640 to 2.6 ppm within a 1-foot depth, it is reasonable to assume that this area does not contain PCBs greater than 50 ppm below a depth of less than 2 feet.

Area 5 is located in the middle of the area bounded by the railroad track and the fence line. This area is partially covered with grass and the ground is not stained with oils. A sample collected by the County (Sample No. LB3-17D) contains 127 ppm of PCBs. Data of Boring No. 5 indicate that all soils contain less than 5 ppm. Data of Boring No. 6 indicate that PCBs attenuate below 50 ppm to depths greater than 2 feet. It is concluded that this area contains soils with PCB concentration less than 50 ppm to depths greater than 2 feet.

Area 6 is along the fence line and adjacent to the sump area. This area has the highest PCB accumulation on the soil. PCB concentrations of surface samples range from 2,100 to 12,000 ppm. No boring samples were taken due to insufficient safety clearance from the power lines which lie above the area along the fence line. However, the vertical extent of PCB distribution is ascertained to be at a depth of less than 4 feet based on the distribution pattern of Boring Nos. 2 and 4.

Area 7 is a limited area where PCB concentration in surface sample is 93 ppm. This area is bounded by Sample Nos. 27 and B7, which show no PCB concentration less than 25 ppm in surface samples. Again, this area is determined to contain PCB concentration less that 50 ppm to depths greater than 2 feet based on the distribution pattern of Boring Nos. 4 and 6.

Areas 8, 9, and 10 are on the south end of the railroad track area which is restricted to a building belonging to a neighbor. Area 8 is on the west side of the railroad track; Area 10 is on the east side of the fence line; and Area 9 lies in-between. The areas along the fence line and the building also have accumulations of approximately 6 to 12 inches of dirt. Several depression spots exist within Area 10.

Area 8 has surface concentrations of PCB ranging from 282 to 17,000 ppm. The high surface concentration areas are restricted to locations within 5 to 10 feet of sample Nos. 13 and 14 since samples of Boring Nos. 8 and 9 contained significantly less PCBs. Approximately 50 percent of PCBs found in those high surface concentration areas (Sample Nos. 13, 14, and 29) are identified as Aroclor 1242.

Area 10 has surface concentration of PCBs ranging from 650 to 19,100 ppm. Again, based on the distribution pattern of Boring Nos. 2 and 4, it is assumed that the concentration of PCB attenuates to below 50 ppm at a depth of 3 feet.

In between Area 8 and 10, the County identified PCB concentration of 76 ppm in Sample No. LB3-17B. Data on Sample No. 58 show 430 ppm PCB in the top 6 inches of soil and 48 ppm in the next 6-inch sample. It is determined that the concentration of PCB is less than 50 ppm to a depth of 6 inches.

Area 11 is a narrow area which is bounded by the railroad track and the neighbor's building. A second manhole is located 30 feet south of the property line. Samples were taken at four locations, designated as Sample Nos. 30, 65, 66, and 68. The surface concentrations range from 19 ppm to 460 ppm. For Sample No. 30, the next 6-inch depth sample contained only 0.6 ppm. Based on data of Sample Nos. 30 and 58, it is ascertained that below the top 6-inch soil depth, PCB concentrations are less than 50 ppm.

Asphalt Pavement Areas. Few depression areas on the asphalt pavements contain PCBs. Locations of dirt sampling points (including the County's sampling points) are shown on Figure 2. PCB concentration data of dirt samples taken in this study are presented in Table 5. These include Sample Nos. P4, P8, and P9. In one of the depression areas, Sample No. P4 contained 2,427 ppm of PCBs. However, dirt samples (P8 and P9) taken from the non-depression areas were found to contain less than 40 ppm PCBs.

Table 5 PCB (Aroclor 1260) Concentration in Air, Dust and Dirt Samples

Sample Number	Description	Concentration
A1	Air sample in rear building	<0,008 ug/m^3
A2	Air sample in front building	<0,008 ug/m^3
D2	Dust and dirt sample in rear building	860 ppm
D4	Dust and dirt sample in rear building	100 ppm
D5	Dust and dirt sample in front building	330 ppm
DW2	Dust and dirt sample from wipe area 2 in front building	1.3 mg/ft^2 620 ppm
DW3	Dust and dirt sample from wipe area 3 in front building	0.044 mg/ft^2 75 ppm
P4	Dirt sample from depression area of parking lot	27[a] ppm 2,400 ppm
P8	Dirt sample from parking lot	35 ppm
P9	Dirt sample from parking lot	30 ppm
W1	Wipe sample on floor of rear building, dust was swept away	0.6 ug/ft^2
W2	Wipe sample on floor of front building, dust was swept away	0.8 ug/ft^2
W3	Wipe sample on floor of front building, dust was swept away	2.9 ug/ft^2

[a] Aroclor 1242

Floor Areas of the Buildings. Samples were taken inside of both the front and rear buildings. These include air samples, dust and dirt samples, and floor wipe samples. Figure 2 also presents the locations of these sampling points. Table 5 also presents laboratory analyses of these samples. Air samples were taken inside each building near the back door at a height of 5 feet above

the floor. Results of these samples (A1 and A2) show insignificant PCB concentrations in the air (below the detection limit of 0.008 ug/m^3). The floor wipe samples (W1, W2 and W3) were taken at three locations to ascertain the background of PCB levels on the floor. Dust and dirt were removed from the floor prior to taking wipe samples and the PCB concentrations of these wipe samples range from 0.6 to 2.9 ug/ft^2 (0.06 to 0.31 ug/100 cm^2). For comparison purposes, state suggested concentration limit is 90 ug/100 cm^2 for another General Electric Company PCB cleanup project. The dust and dirt samples (D2, D4 and D5) collected near door jambs and crevices of both buildings contain residual PCBs, ranging from 100 to 860 ppm. The supplemental work plan of Appendix B contains details of the dust and dirt sampling work. For detailed information about the sampling procedures and analytical methods of air and wipe samples, see Appendix E.

Hydrogeologic and Soil Information

The hydrogeologic information and soil conditions include surface drainage, groundwater conditions and soil classification and are summarized below.

Surface Drainage. Stormwater runoff from the railroad track area is toward the eastern edge of pavement area and then flows in a southern direction along the railroad track. Stormwater is not able to flow through the southeastern basin because the accumulated pile of dirt blocks the entrance. Stormwater runoff from the asphalt pavement areas usually flow to the southwest direction through the northwest storm basin and then to the storm sewer at the center of Stanford Avenue.

Groundwater Conditions. Based on the review of vicinity well records from the Los Angeles County Flood Control District, the following groundwater conditions are known:

1. Present groundwater levels are greater than 100 feet from ground surface, and are as deep as 200 feet in the site vicinity.

2. Previous shallow groundwater zones existed at depths greater than 50 feet from ground surface, and now appear dewatered.

3. Logs of wells closest to the site indicate that fairly extensive and relatively thick deposits of fine-grained low permeability soils exist at relatively shallow depth, between 35 and 60 feet.

Soil Conditions. Soil conditions are further defined from the lithologic logs of the eight boreholes drilled during the subsurface sampling effort. Figure 4 shows a cross section of the soils sequence beneath the site. Symbols used to illustrate soils types are identified on the Unified Soil Classification chart in Appendix C.

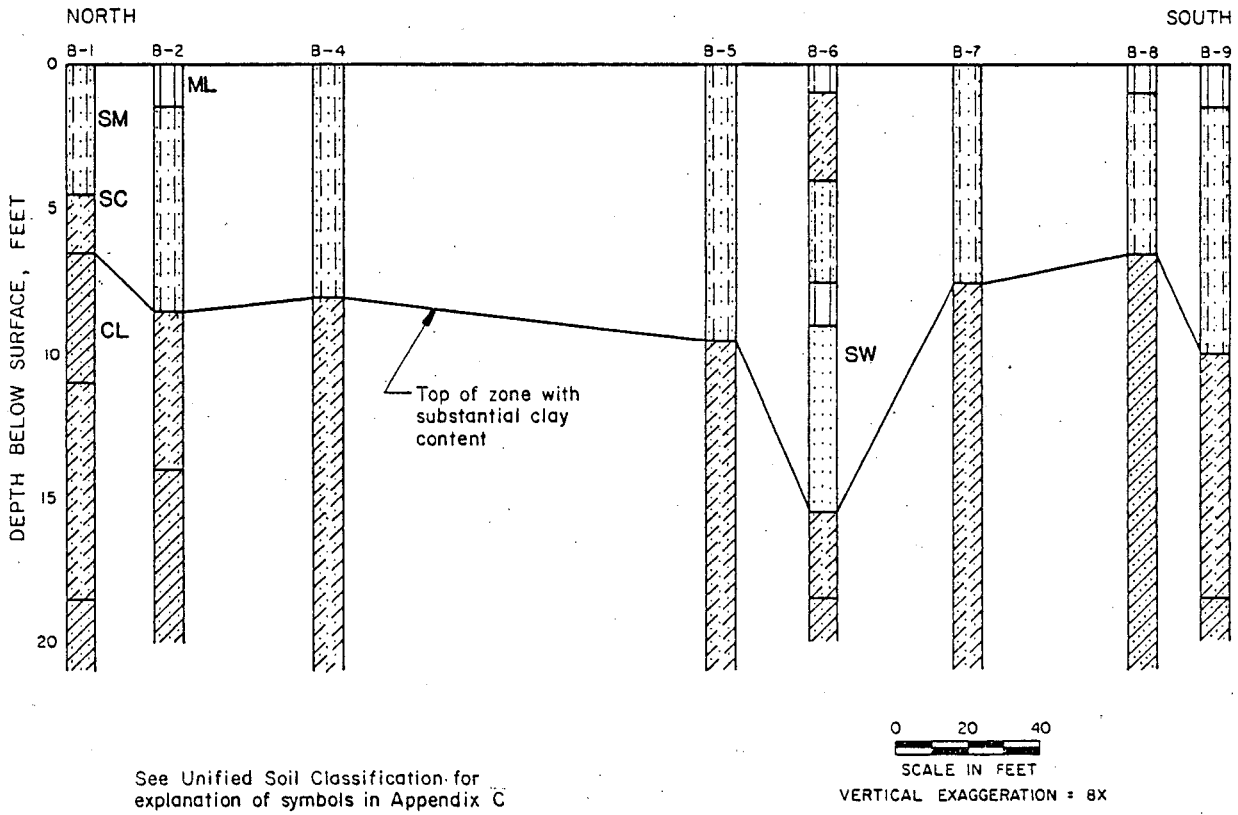


Figure 4 Geologic Cross-Section of the Railroad Track Area

The lithologic logs and this cross section indicate that the property is underlain by silty and clay sands near the surface, with clays or sandy clays below the sands. Clay content increases with depth in all boreholes. The only "clean," well-sorted sand in the section lies between 9 and 16 feet below the surface in borehole B-6; this sand overlies a tight clay zone.

The underlying sandy clay or clay appears to be adequately "tight" to preclude downward migration of contaminates from the surface. No groundwater or other fluids were encountered in any boreholes, although clays at depth held enough moisture to form a ball when compressed.

CORRECTION PLAN

This section presents the recommended correction plan for the site. The recommended correction plan includes excavation work in the railroad track area, removal of the sump and cleanup work in other areas. In addition, the objectives and requirements of the correction plan are presented, correction verification, and the implementation schedule are also provided.

Objectives and Requirements

The general objectives and requirements of the correction plan used to develop the corrective measures for the excavation and the cleanup work are as follows:

1. Remove all soils and dirt containing concentrations of PCBs above 50 ppm.
2. Complete corrective measures within a relatively short period of time (less than 6 months).
3. Minimize disruption to existing facility operation during the implementation period.
4. Allow continued long-term beneficial use of the site.
5. Provide cost-effective and technically-sound measures.
6. Meet the requirements of the regulatory agencies.

The Recommended Corrective Plan

The recommended corrective plan comprises excavation work in the railroad track area, removal of the sump, and cleanup work in other areas.

Railroad Track Area. Excavation of this area presents a permanent solution that is consistent with unrestricted use of the site. Excavation essentially meets all the objectives and requirements except the objective of minimizing site disruption during implementation. However, disruption of the facility's operations can be mitigated by closely coordinating with the existing facility's owner before and during the excavation work.

Excavation would involve multi-level removal of soils containing PCB concentrations greater than 50 ppm using a combination of hand shoveling and mechanical equipment (backhoe and scoop). Excavated soils are to be shipped in 20 cubic yard roll-off bins or end-dump trucks in accordance with U.S. Department of Transportation rules and regulations. These soils are to be disposed of at a U.S. Environmental Protection Agency (USEPA)-approved disposal site. Finally, restoration of the site will require all excavated soil be replaced with clean soil and compacted. The area will be graded such that the surface drainage is toward the southeastern storm catch basin.

Figure 5 presents the proposed area of excavation. The area is approximately 500 feet long with an average width of 8 feet.

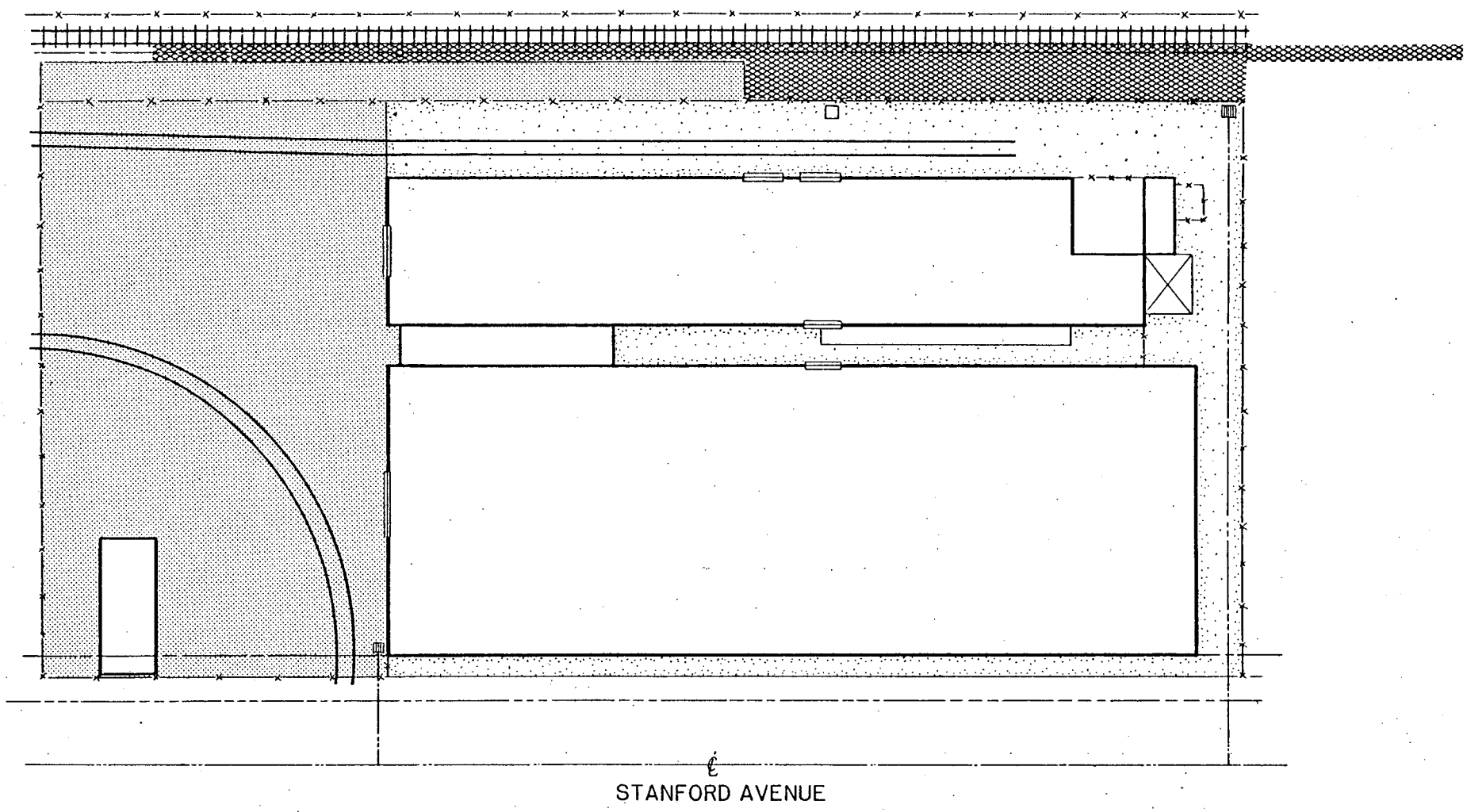


Figure 5 Proposed Boundaries for Excavation Work

The area will be excavated to the depths necessary to remove soils containing PCBs greater than 50 ppm. Based on the results of the site investigation, the proposed multi-level depths of excavation in the railroad track area are also presented in Figure 3. As shown, the excavation depths vary from 0.5 feet to 4 feet depending on the vertical distribution of PCBs. A summary of the areas for the multi-level excavation is presented in Table 6. The total excavation area is 4,211 square feet and the total volume of excavated soil is estimated to be 9,021 cubic feet or 334 cubic yards.

Table 6 A Summary of Excavation Areas and the Volumes of Soil

Location[a]	Area, square feet	Depth, feet	Volume, cubic feet
1	175	0.5	88
2	210	4	840
3	700	2	1,400
4	196	2	392
5	350	2	700
6	513	4	2,052
7	86	2	171
8	510	2	1,020
9	306	0.5	153
10	649	3	1,947
11	516	0.5	258
Total	4,211		9,021

[a]As designated in Figure 3.

[b]Equals to 334 cubic yards.

Sump Area. The sump is located near the fence line and opposite of the back door of the rear building. The sump's dimensions are 2.5 feet by 2.5 feet by 2 feet. The sump will be excavated and disposed of off-site. Prior to the excavation, the liquids and sludges remaining in the sump will be removed and stored in a separate drum. These liquid and sludge materials will be incinerated at a USEPA-approved facility. The excavated sump will also be disposed of at a USEPA-approved disposal site. The connecting pipe between the sump and the sewer line will be capped. The area will then be backfilled with clean soil, compacted and resurfaced with concrete.

Cleanup Work in Other Areas

After the excavation work is completed, the asphalt and concrete pavements and the floor areas of the buildings will be cleaned. All dirt accumulated on the pavements, including depression areas, will be removed. Dust and dirt on the floor of both buildings will be swept with a sweeping compound to minimize the airborne dust. All the dirt and dust collected from the cleanup work will be stored in 55-gallon drums and disposed of at a USEPA-approved disposal site.

A preliminary cleaning of the floor areas of the front and rear buildings was performed during this investigation period. General Electric Company contracted the cleanup work with the IT Corporation. The cleanup work was conducted and completed on August 20, 1983. All of the open spaces were swept with sweeping compound and adsorbent material. Dust was collected and stored in 55-gallon drums. The Chemical Waste Management (CWM) was contracted by the General Electric Company to transport and dispose of these drums to CWM's Kettleman Hills landfill site.

In addition to the asphalt and concrete pavement and the floor area, both storm drain basins will be cleaned. All of the residuals remaining in the inlet area will be removed and stored in 55-gallon drums for off-site disposal.

Correction Verification

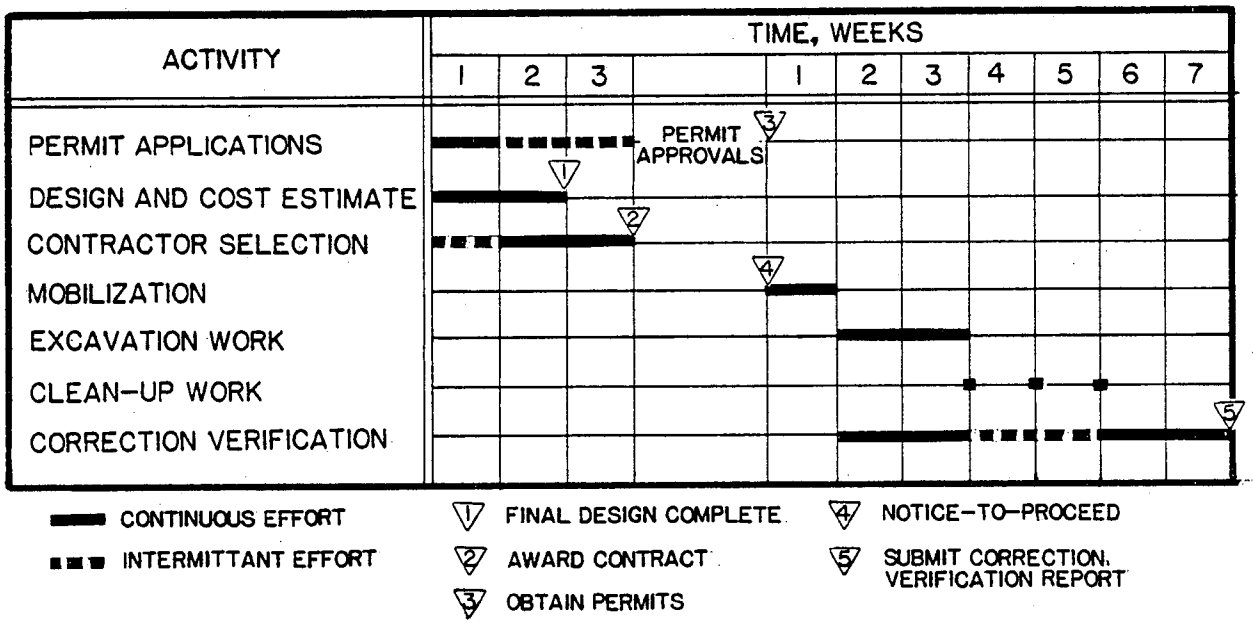
During the site excavation, soil samples will be taken from each area at the proposed excavation depth. These samples will be analyzed in a 24-hour turnaround schedule. Once the PCB concentration level in the soil is verified as being below 50 ppm, the excavated area will be backfilled with clean soil and compacted. If the analysis shows PCB concentration in the soil at the excavated depth at or greater than 50 ppm, further excavation will continue until soil analyses satisfy the 50 ppm criterion.

Samples will also be taken on the asphalt and concrete pavement, floor area, and in the storm catch basin. These samples will be analyzed to verify the success of the cleanup work. A report will be prepared and submitted to the County documenting sampling and analytical methods, implementation, and findings.

Implementation Schedule

An implementation schedule for the correction plan is shown on Figure 6. Implementation is considered to begin after the correction plan is approved. Application for necessary permits will begin immediately. The design work and contractor selection will be completed three weeks after the approval of the correction plan. Once the permits are obtained, a notice-to-proceed with the work will be issued to the contractor. One week is necessary for the contractor to mobilize this work. Mobilization will require the contractor to make arrangements for bonding, equipment, material and personnel necessary to begin work. With weather permitting, the excavation work should be completed within 2 weeks. The cleanup work is scheduled to start after the excavation work and be conducted during three consecutive weekends. The correction verification report will be submitted to the County 2 weeks after the cleanup work is completed. Therefore, the correction plan can be implemented within 7 weeks after the permits are obtained.

Figure 6 Implementation Schedule for the Correction Plan



FINDINGS AND CONCLUSIONS

This section presents a summary of the findings and conclusions of the investigative study and the recommended correction plan.

Extent to which Residual PCBs are Found

Approximately 4,200 square feet of the railroad track area was found to contain PCBs. The vertical extend varies from 0.5 to 4 feet deep and the average depth is about 3 feet.

Within the property line of the facility, both depression areas of the asphalt pavements and the floor areas of the front and rear buildings contain residual PCBs. Air samples taken inside the building indicate that ambient concentrations of PCBs are below the detection limit.

Groundwater and Geologic Conditions

Groundwater levels are greater than 100 feet below ground surface, and are as deep as 200 feet in the vicinity area. An

underlying sandy clay layer in clay on the railroad track area was found. This layer will preclude downward migration of contaminants from the surface to a depth of approximately 15 feet.

Correction Plan

Multi-level excavation of the railroad track area will be used to correct the site. The area will be back-filled and compacted with clean soil and graded to allow surface drainage to the storm catch basin. The sump will be removed and all soils and liquids containing concentrations greater than 50 ppm will be disposed off-site.

Dirt and dust remaining on the asphalt and concrete pavements and floors of both buildings, will be removed and disposed of off-site. Under dry weather conditions, the correction plan can be implemented within 7 weeks after the necessary permits are obtained.

APPENDIX A

LETTERS FROM LOS ANGELES COUNTY DEPARTMENT OF HEALTH SERVICES

COUNTY OF LOS ANGELES • DEPARTMENT OF HEALTH SERVICES

313 NORTH FIGUEROA STREET • LOS ANGELES, CALIFORNIA 90012

PUBLIC HEALTH PROGRAMS

JGLAS R. STEELE
uty Director

N D. FINN, M.D., M.P.H.
Director

Reply refer to:
2615 South Grand Avenue, Room 607
Los Angeles, CA 90007
(213) 744- 3223

April 4, 1983

Mr. Dick Papp
Apparatus Service Shop
3601 E. La Palma Avenue
Anaheim, California 92808

Dear Sir:

POLYCHLORINATED BIPHENOL (PCB) CONTAMINATION OF A FORMER GENERAL ELECTRIC COMPANY FACILITY, 6900 STANFORD AVENUE, LOS ANGELES

On March 8, 1983, a representative of this office inspected the above subject facility in response to information brought to our attention that large quantities of PCB transformer liquid were disposed of at the rear of this facility from 1946 to 1971. On this date and on subsequent inspections of the affected area on March 15 and March 17, 1983, soil and liquid samples were taken at and around a steam cleaning sump opposite the back door to the building. Laboratory analysis of these samples revealed PCB levels ranging from 13 parts per million (ppm) to 1,290 ppm.

The State Department of Health Services defines contaminated materials containing PCB's at a concentration of 50 ppm or greater as a hazardous waste. The improper disposal and improper storage or abandonment of a hazardous waste is a violation of the California Hazardous Waste Control Law.

1. You are hereby directed to remove and legally dispose of all materials contaminated with PCB's at the above subject site by May 10, 1983.

2. Provide this office, for departmental approval, by April 20, 1983, a plan for decontamination of the above subject site which includes the following items:

a) The date that sampling and clean-up activities will begin at the site;

b) The names and addresses of companies contracted to analyze, decontaminate and transport wastes from the above subject site;

c) The methods to be used to decontaminate the affected area;

d) The location of the disposal site;

e) The date, after clean-up is complete, that sampling will take place to verify decontamination of the site.

3. Profice this office by May 20, 1983, a report from a State certified laboratory indicating the decontamination of the site to legal limits and completed copies of all hazardous waste manifests used during the transport and disposal of the contaminated materials.

If you have any questions regarding this notice, please contact Larry Bishop of this office at (213) 744-3223.

Yours truly,

R. L. Dennerline

R. L. Dennerline, Chief
Occupational Health

RLD:LB:s

(explain) TWO ?

DEPT. OF HEALTH SERVICES
PUBLIC HEALTH LABORATORY

HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector Arini Kamashiro / L. Bisbee Date Sampled 4-18-83 Time _____ hours

Location of Sampling ENDURA METAL PRODUCTS
name of company, disposal site, etc.

Address 6900 STANFORD AV. Los Angeles CA
number street city state zip

Telephone ( ) _____ Company Contact _____

FIELD NO.	AK 4-18A	AK4-18B	AK 4-18C	AK 4-18D	AK 4-18E	AK 4-18F
TYPE OF SAMPLE	Hexane Wipe →			→	Dust/Soil →	
LOCATION OF SAMPLE	Denney oven Hood Assembly By Back Door	Beaneys reach in frig Between 2 Back roll Doors	Denneys lower Shelf To large griddle Cabinet	Jack in Box over Hood By Back Door	Dirt By Door Jamb on South end of West Door Back Bldg.	Dirt By S.W. Emerg Door Jamb Back Bldg.
ANALYZE FOR	PCB →					

REMARKS: Wipe samples were done with a Whatman filter paper soaked with Hexane 2 passes (Vertical and Horizontal) were made over a 4 dm² area (2 dm x 2 dm)

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Sample Allocation: __EML __LBL __LABL __SRL Date _____

Lab No.	TW 45-3-83	TW 45-4-83	TW 45-5-83	TW 45-6-83	TW 45-7-83	TW 45-8-83
Rec'd.						
Findings:	Aroclor 1260 trace amount (less than 1 µg)	Aroclor 1260 = 1.7 µg	Aroclor 1260 = 6.0 µg	Aroclor 1260 = 2.2 µg	Aroclor 1260 = 145 ppm	Aroclor 1260 = 65 ppm
Date						5/6/83

PART III; CHAIN OF POSSESSION

signature	agency/organization	inclusive dates	
Florence T. Gabriel	Haz Waste Control	4-18-83	4-21-83
Lan Long	Public Health Lab	4-21-83	5-6-83

RECEIVED
APR 15 1983
A&ES - S.F.

HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector: L. Bishop / K. Campbell Date Sampled: 3-17-83 Time _____ hours

Location of Sampling: Fontana Metal Products
name of company, disposal site, etc.

Address: 6900 Stanford Ave. L.A.
number street city state zip

Telephone (___) _____ Company Contact _____

FIELD NO.	LB 3-17A	LB 3-17C	LB 3-17D	KC 3-17A	KC 3-17B
SAMPLE OF	Soil	Soil	Soil	Soil	Soil
LOCATION OF SAMPLE	R. Road Prof. 100 ft S. of Sump 10 ft from Back Fence	R. Road Prof By Back Fence 25 ft S. of Sump	Composite R. Road Prof Directly E. of Sump	R. Road Prof 3 ft E. of Back Fence & 150 ft S of Sump	R. Road Prof 3 ft E. of Back Fence & 100 ft N of Sump
ANALYZE FOR	PCB	→	→	→	→
OTHER:					

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Sample Allocation: ___EMSL ___LBL ___LASL ___SRI Date _____

Lab. No.	TW 259-83	TW 260-83	TW 261-83	TW 262-83	TW 263-83
Date rec'd.					
Findings:	Aroclor 1260 = 76 ppm	Aroclor 1260 = 444 ppm	Aroclor 1260 = 137 ppm	Aroclor 1260 = 536 ppm	Aroclor 1260 = 78 ppm
By whom					[illegible] 3/29/83

PART III: CHAIN OF POSSESSION

	signature	agency/organization	inclusive dates	
1.	[signature]	Hazardous Waste Control	3-17-83	3-21-83
2.	[signature]	Public Health Lab	3-21-83	3-22-83
3.				
4.				
5.				

(explain) ASAP

FIELD CRIME LABORATORY

HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION 3-15-83

Collector: L. BISHOP/~~K. [illegible]~~ Date Sampled: ~~3-15-83~~ Time _____ hours

Location of Sampling: ENDURA METAL PRODUCTS
name of company, disposal site, etc.

Address: 6900 STANFORD AV. LOS ANGELES CA.
number street city state zip

Telephone (___) _____ Company Contact: _____

FIELD NO.	LB 3-15A	LB 3-15B	LB 3-15C			
SAMPLE OF	Liquid	SLUDGE	Soil			
LOCATION OF SAMPLE	REAR Steam cleaning Sump contents	REAR STEAM CLEANING Contents	25 ft S. of Steam Cleaning Sump at E. Fence			
ANALYZE FOR	PCB	PCB	PCB			

BIS:

PART II: LABORATORY SECTION

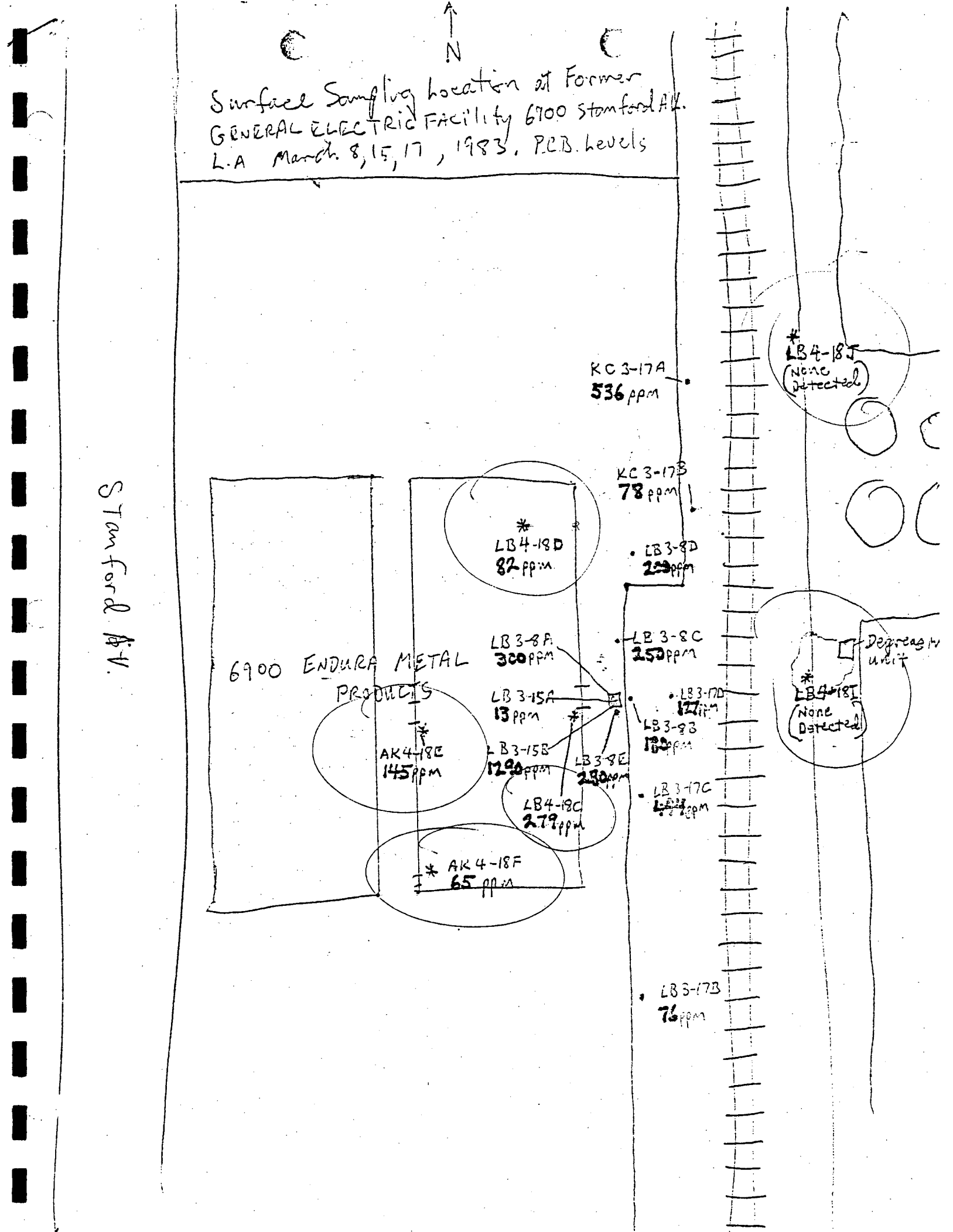
Received by _____ Title _____ Date _____

Sample Allocation: ___EPA ___LBL ___LAEL ___SRI Date _____

Lab. No.	THV 256-83	THV 257-83	THV 258-83			
Date rec'd.						
Findings:	Aroclor 1260 = 13 ppm	Aroclor 1260 = 1290 ppm	Aroclor 1260 = 160 ppm			
Analyst						3/21/83

PART III: CHAIN OF POSSESSION

Signature	agency/organization	inclusive dates	
Lawrence Kilgrow	Hazardous Waste Control	3-15-83	3-21-83
L. [illegible] Lewis	Public Health Lab.	3-21-83	3-25-83


N
Surface Sampling location at Former GENERAL ELECTRIC FACILITY 6900 Stamford Av.
L.A March 8, 15, 17, 1983. PCB. Levels
KC 3-17A
536 ppm
KC 3-17B
78 ppm
LB4-18J
(None Detected)
LB4-18D
82 ppm
LB3-8D
LB3-8A
320 ppm
LB3-8C
250 ppm
6900 ENDURA METAL PRODUCTS
LB3-15A
13 ppm
LB3-17D
LB3-8B
LB4-18I
(None Detected)
Degreasing unit
AK4-18E
145 ppm
LB3-15B
LB3-8E
LB4-18C
279 ppm
LB3-17C
AK4-18F
65 ppm
LB3-17B
76 ppm
Stamford Av.

PRIORITY (explain) By Mo... 11 ... possible

LOS ANGELES COUNTY
DEPT OF HEALTH SERVICES
PUBLIC HEALTH LABORATORY

HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector: L. BISHOP Date Sampled: 3-8-83 Time ____ hours

Location of Sampling: ENDURA METAL PRODUCTS
name of company, disposal site, etc.

Address: 6900 STANFORD AV. Los Angeles CA.
number street city state zip

Telephone ( ) ________ Company Contact ________

FIELD NO.	LB 3-8A	LB 3-8B	LB 3-8C	LB 3-8D	LB 3-8E	
SAMPLE OF	Soil/Graph	Soil	Soil	Soil	Soil	
LOCATION OF SAMPLE	inside curbed sump at E. Fence offsite Rear Door	Railroad prop at Fence behind curbed sump [illegible]	EAST Fence 15' N. of Curbed Sump at Fence by Back Door	Drainage area at E. Fence 30 ft. N.E. of Rear Door	immediately surrounding curbed sump at E. Fence offsite Rear Door	
ANALYZE FOR	PCB	—	—	—	→	

REMARKS:

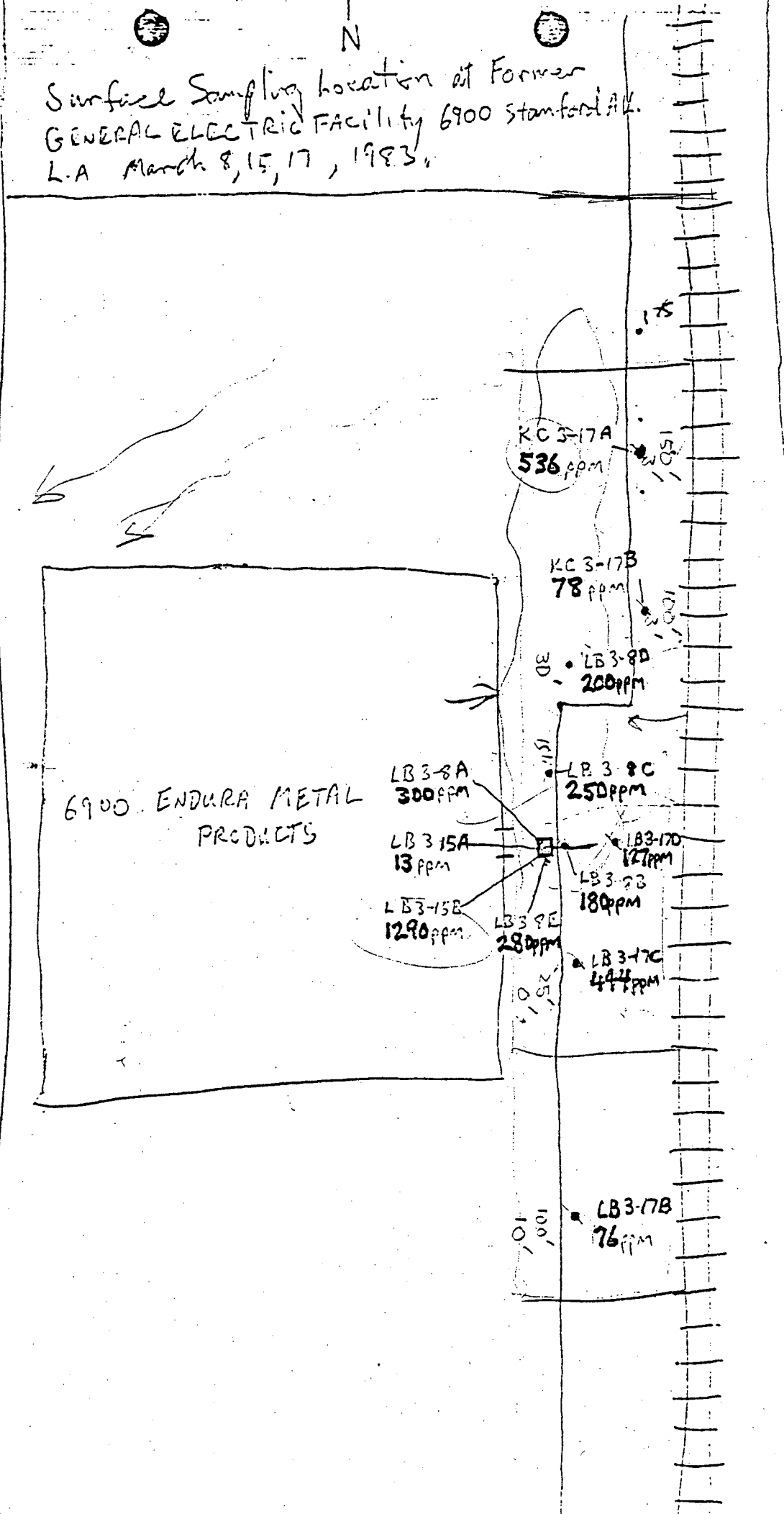
PART II: LABORATORY SECTION

Received by ________ Title ________ Date ________
Sample Allocation: ___HML ___LSL ___LAEL ___SRL Date ________

Lab. No.	TW 185-83	TW 186-83	TW 187-83	TW 188-83	TW 189-83	
Date rec'd.						
Findings:	Aroclor 1260 = 300 ppm	Aroclor 1260 = 110 ppm	Aroclor 1260 = 250 ppm	Aroclor 1260 = 200 ppm	Aroclor 1260 = 200 ppm	
Analyst					[illegible]	3/15/83

PART III; CHAIN OF POSSESSION

signature	agency/organization	inclusive dates	
[signature] Bishop	Hazardous Waste Control	3-8-83	3-9-83
[signature]	[illegible] Public Health Lab	3-9-83	3-15-83


N
Surface Sampling location at Former GENERAL ELECTRIC FACILITY 6900 Stanford Ave. L.A March 8, 15, 17, 1983.
Stanford Ave.
6900 ENDURA METAL PRODUCTS
KC 3-17A
536 ppm
KC 3-17B
78 ppm
LB3-8D
200ppm
LB3-8A
300ppm
LB3-8C
250ppm
LB3 15A
13 ppm
LB3-17D
127ppm
LB3-8B
180ppm
LB3-15B
1290ppm
LB3 8E
280ppm
LB3-17C
444ppm
LB3-17B
76ppm
175'
150'
200'
100'
150'
150'
100'

PRIORITY
(explain) Turn P (

LOS ANGELES COUNTY
DEPT. OF HEALTH SERVICES
PUBLIC HEALTH LABORATORY

HAZARDOUS MATERIALS SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector LARRY R. BISHOP Date Sampled 4-18-83 Time ____ hours

Location of Sampling ENDURA METAL PRODUCTS / TRICO INDUSTRIES
name of company, disposal site, etc.

Address 6900 STANFORD AV. LOS ANGELES / 19706 Normandie
number street city state zip

Telephone (___) ____ Company Contact ____

	ENDURA				TRICO
LAB NO.	LB 4-18C	LB 4-18D	LB 4-18I	LB 4-18J	LB 4-15A
SAMPLE OF	Dust	Dirt/Dust	Soil	Soil	Soil
LOCATION OF SAMPLE	FLOOR INSIDE BACK DOOR opposite Sump	Composite on Floor N. End of Rear Bldg	Side of Track AT Fence By Degreaser Off. Rear Corner of ENDURA	R.R. Prep. E. of Tracks Off Mid North Yard of ENDURA	EAST Drive-In R.R. Prep By Back Fence By Tel. Pole
REMARKS FOR ANALYSIS:	PCB →	→	→	→	→

PART II: LABORATORY SECTION

Received by ____ Title ____ Date ____
Sample Allocation: ___EML ___LBL ___LAEL ___SRL Date ____

Lab No.	TW 448-83	TW 449-83	TW 450-83	TW 451-83		TW 452-83
Date rec'd.						
Findings:	Aroclor 1260 = 279 ppm	Aroclor 1260 = 82 ppm	N.D.			N.D.
Analyst						

PART III; CHAIN OF POSSESSION

signature	agency/organization	inclusive dates	
Lawrence R. Bishop	Los Angeles County	4-18-83	4-21-83
Lan Tong	Public Health Lab	4-21-83	5-6-83

COUNTY OF LOS ANGELES • DEPARTMENT OF HEALTH SERVICES

313 NORTH FIGUEROA STREET • LOS ANGELES, CALIFORNIA 90012

PUBLIC HEALTH PROGRAMS

DOUGLAS R. STEELE
Deputy Director

MARTIN D. FINN, M.D., M.P.H.
Medical Director

Reply refer to:
2615 South Grand Avenue, Room 607
Los Angeles, CA 90007
(213) 744-3223

April 22, 1983

Mr. Paul Schatz
General Electric Company
55 Hawthorne Street
San Francisco, California 94105

Dear Sir:

POLYCHLORINATED BIPHENOL CONTAMINATION AT A FORMER GENERAL ELECTRIC FACILITY, 6900 STANFORD AVENUE, LOS ANGELES, CALIFORNIA 90001

In response to your request for additional information contained in an anonymous letter sent to the Environmental Protection Agency dated January 19, 1983, regarding the above subject matter, the following information is provided.

From February, 1946, to December, 1971, a General Electric Apparatus Repair Service Shop located at the above subject address processed several thousand 10c oil and pyranol filled transformers. Standard procedure called for used oils to be pumped from the transformers and disposed of by various vendors. However, smaller 10 to 50 gallon units were often dumped out primarily at the edge of a steam cleaning platform which bordered the railroad property behind the shop. Some units were up-ended along the length of the chain link fence separating the two properties.

The author of the letter presumed that if a minimum of 100 gallons of oil per week was dumped in this manner, then 100 gallons x 52 weeks x 25 years = 130,000 gallons of oil was dumped. If half of the oil was pyranol, then a minimum of 65,000 gallons of PCB's were dumped out.

The author further states that PCB's were not considered hazardous at the time of disposal, but that because the PCB's contain dioxin, he or she presumes that the ground water supply for Los Angeles is contaminated with this material. This letter was sent to Ann Gorsuch of the E.P.A. with a copy sent to Los Angeles City Mayor Tom Bradley.

We look forward to working with you or your representative in the near future to implement a prompt decontamination of the affected areas. We anticipate receiving a written clean-up plan from General Electric Company within the next ten (10) days. Although our memorandum of understanding with the State Department of Health Services specifies that our Department is the sole enforcement agency in this type of clean-up action, we will elicit comment on your plan from both the State Department of Health Services and the Regional Water Quality Control Board prior to approving the plan. If you wish, you are welcome to send copies of this plan directly to these agencies. We suggest you send these copies to:

Mr. John Hinton
Department of Health Services
Hazardous Waste Management Branch
107 S. Broadway, Room 7128
Los Angeles, California 90012

Mr. David Gildersleeve
Regional Water Quality Control Board
107 S. Broadway, Room 4027
Los Angeles, California 90012

If you have any further questions regarding this letter, please contact Larry Bishop at (213) 744-3223.

Sincerely,

R. L. Dennerline

R. L. Dennerline, Chief
Occupational Health

RLD:LB:s

cc: William Thorton
General Electric Company
1 River Road, Bldg. 2/706
Schenectady, New York 12345

APPENDIX B

WORK PLANS

WORK PLAN FOR THE
STANFORD AVENUE SITE INVESTIGATION

Prepared For

GENERAL ELECTRIC COMPANY

By

BROWN AND CALDWELL

MAY 1983

CONTENTS

WORK PLAN

Section 1

OBJECTIVES

This section presents our objectives for the site investigation study and the work plan in response to the requests from the County Health Services Department, dated on April 4, 1983.

Site Investigation

Surface soil PCB concentrations in excess of 50 milligrams per kilogram have been measured at the site located at 6900 Stanford Avenue, Los Angeles, California. This site investigation is designed to measure PCB concentrations in near-surface soils exposed along the eastern border of the site. The objective of the study is to define the lateral and vertical extent of soils with PCB concentrations greater than or equal to 50 milligrams per kilogram, and to determine other information about the site useful for developing of appropriate correction plan. The State of California Department of Health Services defines soils with PCB concentrations greater than or equal to 50 milligrams per kilogram as hazardous waste.

Work Plan

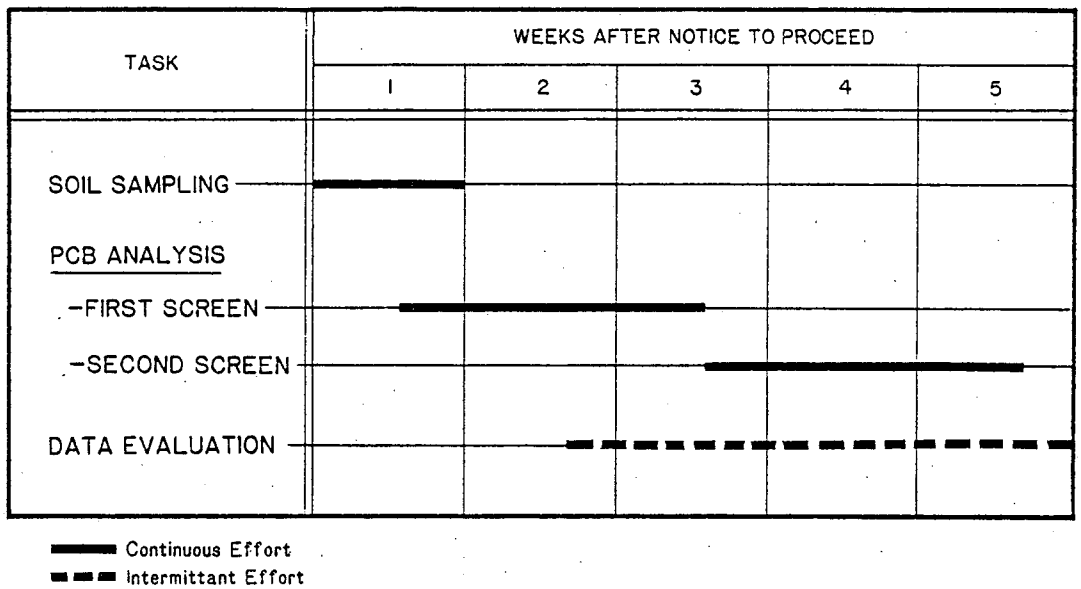
The work plan presented here is developed to define the soil sampling and analytical work to be performed as part of the site investigation study. The plan contains the following: (1) define the objectives of the project; (2) presents the schedule and sequence of the work; (3) identifies the soil sampling locations; (4) describes the soil sampling method and procedures; (5) describes the analytical method and quality assurance plan; and (6) field safety protocols to be used.

Section 2

SCHEDULE

Soil sampling and analyses schedule is presented in Figure 2-1. As shown, necessary field work laboratory analyses and data evaluations are scheduled to be completed 5 weeks after receiving authorization to proceed. Please note that the turn around time for laboratory analysis is 10 working-days.

Figure 2-1 Soils Sampling and Analysis Schedule



SECTION 3

SOIL SAMPLING LOCATIONS

Based on our reviews of data and information from the County Health Services Department and on-site inspections, proposed soil sampling locations are shown in Figure 3-1. As shown, surface and subsurface soil samples will be collected at 20 locations along the eastern boundary of the site, between the fences for the railroad tracks. Among these locations, three locations are on the east side of the railroad track, 11 locations are on the west side of the railroad track, and six locations are near and south to the sump along the fence line. These locations extend from the northern to southern boundary of the site at a spacing that ranges from 15 feet near the sump to 200 feet at the other locations. The designated sampling locations will be revised once the exact locations of County Health Services Department's previous and recent sampling points are verified.

SECTION 4

SOIL SAMPLING METHODS AND PROCEDURES

The planned field work consists of sampling surface and subsurface soils along the eastern boundary of the site. The field work will be performed by personnel experienced in collecting surface and subsurface soils at PCB contaminated sites.

Sampling Methods

Soil samples will be collected using a hand drive sampler which is a slide hammer assembly. To take the samples, the 6-inch long sampler lined with a brass tube is pounded into the ground. After the sampler has reached 6 inches in depth, it is removed from the hole. The brass tube is removed and capped. At each sampling location, we will collect one sample each from 0 to 6 inches depth and 6 to 12 inches depth. If sampling is not difficult, additional 6-inch samples will be collected to a maximum depth of 30 inches.

Sample Handling and Protocols

Extreme care will be taken at every step of the sampling program to ensure quality control by maintaining sample integrity and observing chain-of-custody procedures. During all on-site sampling, a geologist will supervise the work and create documentation of the field operations. Before collecting each sample, the sampler will be cleaned with Alconox and water, rinsed with water, air dried and finally rinsed with hexane. The brass sample tubes will be cleaned in the laboratory and the ends will be capped with aluminum foil before being brought to the site.

A field sample log will be established and each soil sample will be assigned a unique field sample number. The field sample number will be marked on each brass tube after a sample has been collected. After collection, each sample will be packed in an ice chest for transport to our Pasadena laboratory. A copy of the field sample log will be included with the samples to assist the lab personnel with logging in the samples. The log will include the field sample number, the sampling location, the depth, the date, and the field personnel. A laboratory sample number will be assigned and entered on the field sample log for cross-referencing.

SECTION 5

ANALYTICAL METHOD AND QUALITY ASSURANCE PLAN

The collected soil samples will be analyzed in the laboratory for PCB concentrations using a screening process. Initially, soil samples collected from 0 to 6 inches depth at all sampling locations will be analyzed for PCB concentrations. At those locations where the sample from 0 to 6 inches has a PCB concentration of 50 milligrams per kilogram or greater, the sample from 6 to 12 inches depth will be analyzed. Subsequent 6-inch soil samples collected below a depth of 12-inches will be analyzed until PCB concentrations less than 50 milligrams per kilogram are measured.

ANALYTICAL METHOD

The analytical method used for the analysis of PCBs in soils has been thoroughly validated. This method has been used to determine the extent of PCB contaminations on several site investigations and has undergone California Department of Health Services, Hazardous Materials Laboratory review.

1. Scope and Application

   1.1 This method is for the determination of Aroclors 1016 through 1262 in soils, sludges, and sediments. It is applicable to concentrations of PCB from 0.05 mg/kg and up.

2. Summary of Method

   2.1 Soil samples are dried and ground, then extracted with hexane on an automatic wrist action shaker.
   2.2 Soil/hexane slurry is allowed to settle.
   2.3 Hexane extract is decanted off, then appropriate dilutions are made.
   2.4 Diluted extract is quantitated on a 1.95% SP2401/1/5% SP2250 on 100/120 mesh supelcoport column by GC/ECD.

3. Interferences

   3.1 Interferences can originate from virtually any source, such as glassware, solvents, tygon tubing, polyethylene bottles, or sample matrix. These interferences are minimized by careful handling of the sample and solvents, florisil clean-up and acetonitrile partitioning when necessary. Alternate column packings are also used to resolve components from a suspected interference.

4. Apparatus and Materials

4.1 Sample Preparation
- 4.1.1 50 mL class a graduated cylinder with ground glass fitting
- 4.1.2 Analytical balance to 0.01 gram
- 4.1.3 Disposable Pasteur pipets
- 4.1.4 Round bottom flasks, 100 mL with 24/40 joint
- 4.1.5 Water cooled condensers with 24/40 joint
- 4.1.6 Heating mantles 100 volts
- 4.1.7 Separatory funnel, 500 mL
- 4.1.8 Chromatographic Column, 25 mm OD, 400 mm height, coarse frit and Teflon stopcock (Kontes K-42054-213)
- 4.1.9 Infrared heat lamps
- 4.1.10 Burrell wrist action shaker
- 4.1.11 8 ounce glass bottles with teflon lined caps
- 4.1.12 40 mL volatile organics analysis vials

4.2 Chromatography Apparatus and Materials
- 4.2.1 Gas chromatograph, complete with on-column injection, and all accessories including electron capture or halogen specific detector, column supplies, recorder/integrator/data system, gases, syringes, etc.
- 4.2.2 Column, 1.5% SP-2250/1.95% SP-2401 on 100/120 mesh Supelcoport, 6-foot by 1/4-inch.

5. Reagents

- 5.1 Nanograde hexane
- 5.2 Nanograde acetone
- 5.3 Nanograde diethyl ether
- 5.4 Reagent grade sulfuric acid
- 5.5 Reagent grade potassium hydroxide
- 5.6 Organic free water
- 5.7 Ethanol
- 5.8 Florisil-PR grade 60/80 mesh. Activated at 1250°C, maintained at 130°C in covered container
- 5.9 Nitrogen gas for evaporation/concentration
- 5.10 Mercury, triple distilled
- 5.11 Dehyrohalogenation reagent alcoholic potassium hydroxide (Prepare daily by adding 5 grams KOH in 3 mL water and 17 mL ethanol.)

6. Calibration

6.1 Prepare calibration standards that contain the compounds of interest, either singly or mixed together. The standards should be prepared at concentrations covering two or more orders of magnitude that will completely bracket the working range of the chromatographic system.

6.2 Assemble the necessary gas chromatographic apparatus and establish operating parameters equivalent to those indicated in Section 9.2. By injecting calibration standards, establish the sensitivity limit of the detector and the linear range of the analytical system for each compound.

6.3 The cleanup procedure in Section 9.1.4 utilizes Florisil chromatography. Florisil from different batches or sources may vary in absorption capacity. To standardize the amount of Florisil which is used, the use of lauric acid value (Mills, 1968) is suggested. This method is presented as PCB, Attachment 1. The referenced procedure determines the adsorption from hexane solution of lauric acid (mg) per gram Florisil. The amount of Florisil to be used for each column is calculated by dividing this factor into 110 and multiplying by 20 grams.

7. Quality Control

7.1 Before processing any samples, the analyst should demonstrate through the analysis of a method blank, that all glassware and reagents are interference-free. Each time a set of samples is extracted or there is a change in reagents, a method blank should be processed as a safeguard against chronic laboratory contamination.

7.2 Standard quality assurance practices should be used with this method. Field replicates should be collected to validate the precision of the sampling technique. Laboratory replicates should be analyzed to validate the precision of the analysis. Spiked samples should be analyzed to validate the accuracy of the analysis.

7.3 Every tenth sample receives a duplicate analysis and a spike recovery analysis.

8. Sample Collection and Handling

8.1 Samples should be collected with only metal or glass equipment. Plastic materials must be avoided.

8.2 To avoid cross contamination of samples from sampling equipment, rinsing of spades or shovels with acetone followed by air drying is recommended.

8.3 Sample should be put into a glass jar with metal or foil lined screw cap lid, or placed in heavy duty aluminum foil, wrapped tightly and secured with duct tape.

9. Procedure

9.1 Sample Preparation

9.1.1 Empty soil sample into an aluminum pan.

9.1.2 Remove atypical debris such as trash, rocks, and sticks.

9.1.3 Allow sample to air dry at ambient temperature, in an area of the laboratory not subject to drafts or heavy traffic so as to avoid cross contamination. Drying times will vary with moisture content and consistency of each sample but range typically from two to four days. During drying, soil should be occasionally gently stirred with a clean wooden (popsicle) stick which is left in the aluminum pan.

9.1.4 Crush soil with a rolling pin wrapped with heavy duty aluminum foil, then screen with an 18 mesh sieve.

9.1.5 Weigh 50 g sieved sample and transfer to clean 8 ounce glass bottle with a teflon lined cap using a powder funnel.

9.1.6 Add 100 mLs hexane and secure cap.

9.1.7 Fasten to shaker apparatus and extract for 30 minutes.

9.1.8 Remove bottle from shaker apparatus and allow slurry to settle. Decant hexane extract into a teflon capped glass vial.

9.2 Cleanup and Separation

9.2.1 Sulfuric Acid Cleanup

9.2.1.1 Usually interferences in the sample prohibit direct injection of the hexane dilution. The first cleanup choice is with H_2SO_4.

9.2.1.2 Add 40 mL of sulfuric acid to the 10 mL of hexane. Invert and shake for 2 minutes.

9.2.1.3 Allow the layers to separate.

9.2.1.4 Decant the clear hexane layer. Extract is ready for GC analysis.

9.2.2 Florisil Column Cleanup

9.2.2.1 This cleanup procedure is rather weak, and has proved to be successful only in a few cases.

9.2.2.2 Add a weight of Florisil, (nominally 21g), predetermined by calibration to a chromatographic column. Settle the Florisil by tapping the column. Add sodium sulfate to the top of the Florisil to form a layer 1-2 cm deep. Add 60 mL of hexane to wet and rinse the sodium sulfate and Florisil. Just prior to exposure of the sodium sulfate to air, stop the elution of the hexane by closing the stopcock on the chromatography column. Discard the eluate. Transfer hexane extracts to florisil column.

9.2.2.3 Place a 500 mL K-D flask and clean concentrator tube under the chromatography column.

9.2.2.4 Drain the column into the flask until the sodium sulfate layer is nearly exposed. Add 5 mL of hexane to wash the walls of the column. Drain the column again. Repeat once more. Do not expose the sodium sulfate layer. Elute the column with 200 mL of 6% ethyl ether in hexane (Fraction 1) using a drip rate of about 5mL/minute. Remove the K-D flask and set aside for later concentration.

9.2.3.5 Concentrate the eluate by standard K-D techniques, substituting hexane for the glassware rinses and using the water bath at about 85°C. Adjust final volume to 10 mL with chromatography.

9.2.3 Elemental Sulfur Cleanup

9.2.3.1 Elemental sulfur will usually elute entirely in Fraction 1 of the Florisil cleanup. To remove sulfur interference from this fraction or the original extract, pipet 1.00 mL of the concentrated extract into a clean concentrator tube or Teflon-sealed vial. Add 1-3 drops of mercury and seal. Agitate the contents of the vial in an upright position on a reciprocal laboratory shaker and shake for 2 hours. Analyze by gas chromatography.

9.2.4 Saponification Cleanup

9.2.4.1 This is the cleanup procedure of choice when the sulfuric acid treatment is ineffective.

9.2.4.2 Transfer the extract to a 100 mL round bottom flask (prerinsed with hexane). Rinse the beaker with hexane and add rinsing to the round bottom flask.

9.2.4.3 Using a tilter dispenser, add 20 mL alcoholic potassium hydroxide to each sample and reflux for 20 minutes with a water cooled condenser. Cool to room temperature.

9.2.4.4 Transfer the saponified extract to a 500 mL separatory funnel (pre-rinsed with hexane). Rinse the condenser and the round bottom flask with 15-20 mL distilled water and 30 mL hexane, transferring rinses to the separatory funnel.

9.2.4.5 Shake the separatory funnel vigorously for two minutes. Allow a few minutes for phase separation. Drain and discard the lower phase (aqueous layer). If there is an emulsion, add about 5 mL sodium chloride to the sample.

9.2.4.6 Add 25-30 mL distilled water to the upper layer and shake vigorously for one minute. Allow a few minutes for phase separation. Drain and discard lower phase (aqueous layer).

9.2.4.7 Repeat step 9.2.4.6 twice more.

9.2.4.8 Pour the saponified extract through anhydrous sodium sulfate into a Kuderna-Danish apparatus. Concentrate to 10 mL hexane. The extract is ready for GC analysis.

9.3 Chromatography

9.3.1 Screen the extract after initial sulfuric acid cleanup and determine if further cleanup is necessary.

9.3.2 Column - 1.5% SP-2250/1.95% SP-2401 on 100/120 Supelcoport, 6-foot by 1/4-inch.

9.3.3 Carrier gas, 95% argon, 5% methane.

9.3.4 Carrier flow, 60 mL/minute.

9.3.5 Gas chromatograph, Hewlett Packard 5840 with 5840A GC terminal and 7672 automatic sampler.

9.3.6 Injector temperature, 250°C.

9.3.7 Oven temperature, 204°C.

9.3.8 Detector, electron capture.

9.3.9 Detector temperature, 300°C.

10. Calculations

10.1 The height of several selected prominent peaks in the chromatogram are compared to the height of those same peaks in the calibration standards. The concentration of PCB in the sample extract is determined for each selected peak using regression analysis based upon peak height. The average concentration ($\bar{X}$) in ng/mL is then calculated.

10.2 The concentration of PCB in the sample extract is multiplied by the dilution factor (DF) and the total extract volume (V), in milliliters, then divided by sample weight (W), in grams. The PCB concentration (C) is reported by ug PCB/gram sample.

Example:

$$C, \quad , \text{ ug PCB/g} = \frac{\bar{X} \times DF \times V}{W \times 1000}$$

11. References

11.1 Federal Register, Monday December 3, 1979, Part III. EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations. EPA-600/D-80-21.

11.2 207, 208 and 209. Sample Preparation for Chlorinated Hydrocarbons. From Laboratories Section Procedures for the Characterization of Water and Wastes, County Sanitation Districts of Los Angeles County. Raymond M. Stewart, 1973.

QUALITY ASSURANCE PLAN

Advanced planning is essential to the collection of representative samples and accurate analyses. Sampling equipment, appropriate containers and preservatives, and holding times are a few of the considerations which must be made to minimize possibilities for contamination or unnecessary delays which threaten the integrity of a sample. Precision and accuracy are meaningless without the proper collection of a representative sample. Quality assurance starts with experienced field personnel. Sample containers are clearly marked, and all pertinent field observations are recorded along with samples' description, time, and date of collection, and initials of the collector in a field sample log.

Sample Control

Verification of sample integrity is one of the main responsibilities of our sample control officer. The sample will be inspected to see that it was collected with the following considerations:

1. Sample identification--The sample must be clearly marked and dated.

2. The sample must be collected in the most appropriate container for the individual analysis; whether it be glass, plastic, or a special vial to avoid head space.[a]

3. The sample must be properly preserved.

4. There must be an adequate volume for all analyses involved.

If the above conditions are met, the sample will be given a log number, and the description, date received, and client's name are all recorded along with any other relevant information. If aliquots or subsamples are to be split, care is taken to ensure that the subsamples are representative of the original. Blending or grinding may be required.

Another major task of the sample control officer is to establish the chain-of-custody. The sample must be accounted for from the time of collection to the time of disposal.

Analytical Quality Control

In addition to routine calibration of the instruments with standards and blanks, the analyst is required to run duplicates and spikes on 10 percent of the analyses to ensure an added measure of precision and accuracy. Accuracy is also verified through the following:

[a]U.S. Environmental Protection Agency Publication 600/4-79-020.

1. U.S. Environmental Protection Agency and state certification results.

2. Participation in interlaboratory or round-robin programs.

3. "Blind" samples are submitted by our quality assurance officer on a weekly basis. These are prepared from National Bureau of Standards or U.S. Environmental Protection Agency reference standards.

4. Verification of results with an alternative method. For instance, calcium may be determined by atomic absorption, ion chromatography or EDTA titrimetric methods. Volatile organics may be determined through either purge and trap or liquid-liquid extraction methods.

When possible, accuracy is also checked by a cation-anion balance. Where applicable, correlations may be established for total organic carbon, biochemical oxygen demand, chemical oxygen demand, and other parameters. Dissolved solids and conductance often serve as checks against each other. Mass balance calculations will also assist in identifying error if flow rates of a system are known. All of the above considerations are essential to quality assurance in providing an added means of identifying error.

Where trace analysis is involved, purity of the solvents, reagents, and gases employed is of great concern. Brown and Caldwell maintains service contracts on all major instrumentation, i.e., gas chromatographs, atomic absorption, ion chromatography, and total organic carbon analyzers are all serviced and maintained regularly.

Chain-of-Custody

Brown and Caldwell's chain-of-custody procedures have been established to document the identity of a sample and its handling from the time of collection until its ultimate disposal.

Proper sample handling techniques begin with a well-planned sample collection program which includes having sample containers pre-cleaned and labeled. When sample containers are requested by a client, they are appropriately prepared and preservatives added in advance. This assists in eliminating contamination or degradation of samples.

Sample identification in the field initiates a chain-of-custody record which is provided with the containers (Figure 5-1) and remains with the sample throughout its handling. This includes the transfer of samples from the field crew to the laboratory, and in some cases where necessary, to a subcontractor's laboratory.

Figure 6-1 Chain-of-Custody Card

CLIENT _____ DATE RECEIVED _____
ADDRESS _____ CLIENT JOB # _____
CITY STATE _____ PO/CONTRACT # _____
PHONE _____ BC JOB NO _____

No.	Date	Description	Analyses Required	Chain of Custody
				Relinquished by: Date
				Received by: Date
				Relinquished by: Date
				Received by: Date
				Relinquished by: Date
				Received by: Date
				Mailed by: Date

BROWN AND CALDWELL
1255 POWELL STREET
EMERYVILLE, CA 94608
(415) 428-2300

BC LOG NUMBER _____

See Reverse for Comments

Upon receipt at the laboratory, sample integrity is verified by the sample control officer as discussed above. Each sample is then assigned a discrete log number which will identify the sample throughout analysis and reporting. This log number will be recorded in the chain-of-custody record and in the legally required sample log book maintained at Brown and Caldwell.

SECTION 6

FIELD SAFETY PROTOCOL

Personnel safety is an important consideration during investigations of sites which may contain contaminants. It is important to provide personnel safety equipment appropriate to the level of risk in a low-key manner. We propose to provide all personnel involved with the field soil sampling disposable plastic-coated paper coveralls, steel-toed neoprene boots, and neoprene gloves. Dust filter masks will be available, if necessary.

SUPPLEMENTAL WORK PLAN FOR
THE STANFORD AVENUE SITE INVESTIGATION

Prepared for

GENERAL ELECTRIC COMPANY

By

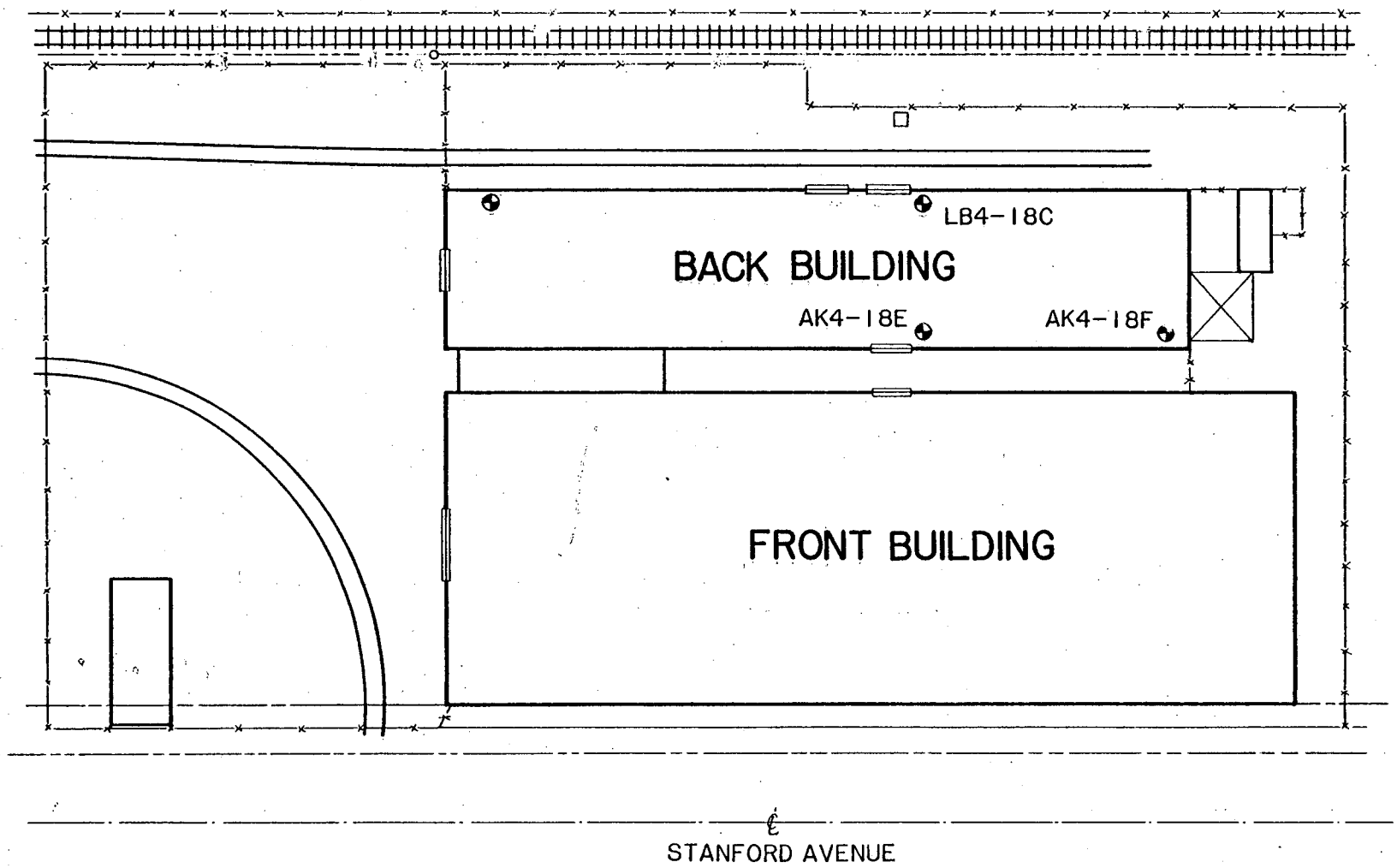
BROWN AND CALDWELL

June 1983

SUPPLEMENTAL WORK PLAN FOR THE

STANFORD AVENUE SITE INVESTIGATION

This supplemental work plan is prepared in response to the request of Mr. Larry Bishop of the County Health Services Department on May 27, 1983. The objective of this work plan is to define the extent of PCB contamination inside the back building of the former General Electric facility located at 6900 Stanford Avenue, Los Angeles. In order to define the contamination level, we had taken four dust samples inside the building either at the same locations or in the vicinity areas where samples were taken by the County on April 18, 1983. As shown on Figure 1, three samples were taken at the same location of sample numbers LB4-18C, AK4-18E and AK4-18F. We were not able to collect enough dust samples at the location of sample number LB4-18D. However, we did collect enough dust samples at the location east of this point near the wall. These samples will be analyzed in accordance with the schedule presented in Section 2 of our May 24 work plan. Sample taken at the location of sample number LB4-18C is scheduled to be analyzed in the first screening analysis. If the concentration of this sample is comparable with County's results, the remaining three samples will be analyzed in the second screening analysis. Analytical method, quality assurance plan and field safety protocol for this supplemental work plan are the same as those presented in our May 24 work plan. Depending on the extent of the contamination, a correction plan may be developed to meet regulatory agent requirements.



◓-Sampling Point

SCALE: 1/4"-10'

Figure 1 Locations for Dust Samples

FOLLOW-UP WORK PLAN FOR THE STANFORD AVENUE SITE PROJECT

Prepared for

GENERAL ELECTRIC COMPANY

BROWN AND CALDWELL

June, 1983

FOLLOW-UP WORK PLAN FOR THE STANFORD AVENUE SITE PROJECT

This work plan presents our follow-up activities of the site investigation study as part of the Stanford Avenue Site Project. In accordance with our May 24, 1983 work plan and the June 10, 1983 supplemental work plan, we completed a field investigation study on May 27, and 28, 1983. Based on the preliminary results of soil and dust sample analyses, it is necessary to pursue another extensive field study to gather additional information for developing an appropriate correction plan. This plan contains the following: (1) objective; (2) schedule; (3) sampling locations; and (4) sampling methods and procedures. Same analytical method, quality assurance plan and field safety protocol will be followed in accordance with our May 24, 1983 work plan.

Objective

The objective of this follow-up work plan is to collect and analyze additional surface and subsurface samples to further define the lateral and vertical extents of PCB contaminations along the railroad track on the eastern border of the former General Electric facility.

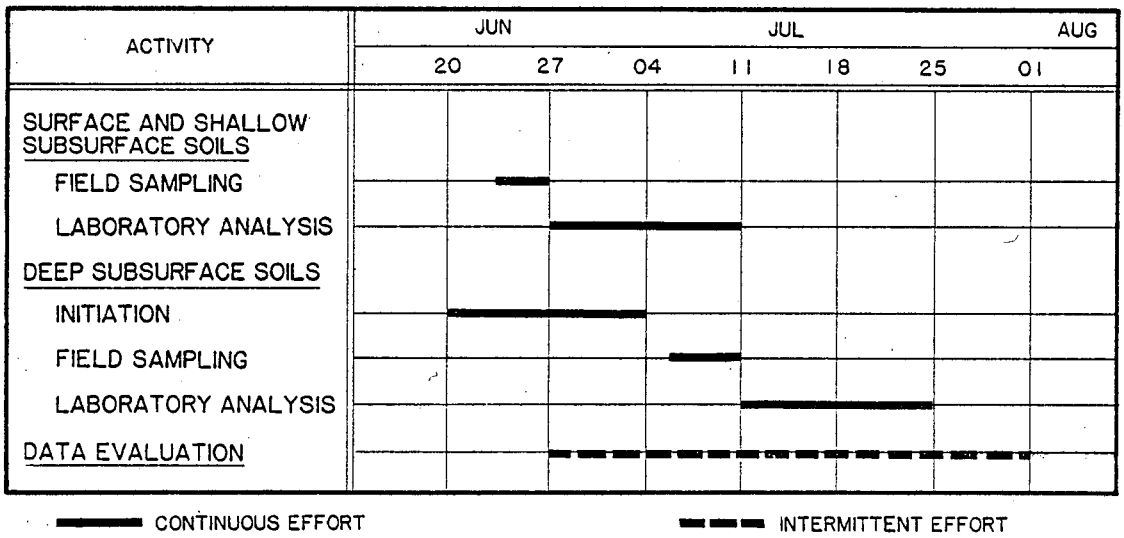
Schedule

Soil sampling and analyses schedule is presented in Figure 1. Surface and subsurface soil samples will be collected in two separate field trips. Sampling work using a hand-drive sampler to collect surface (on the ground) and shallow subsurface (below the ground level but within the 24-inch depth) soils is scheduled to be completed by June 24, 1983. Sampling work using a drilling rig to collect surface and shallow and deep subsurface (below the 24-inch depth) soils will be conducted about one week later. This will allow some time to analyze the surface and shallow subsurface soils and to prepare the initiation work for the drilling operations. These drilling samples are scheduled to be analyzed by July 25, 1983. Periodically, laboratory data will be reviewed and the evaluation will be completed by July 30, 1983.

Sampling Locations

Locations of surface and subsurface soil sampling points are presented in Figure 2. Surface and shallow subsurface soil samples will be collected at ten locations. Of these locations, four are on the east side of the railroad track, three locations are north to the manhole and another three locations are south to the sump. In addition, surface and subsurface soil borings will

Figure 1 Soil Sampling and Analysis Schedule for the Follow-Up Work Plan



be made at ten locations. Only five locations are shown which were determined based on the results of our May 24, 1983 work plan. Another five locations will be selected based on the data of surface and shallow subsurface soils which are scheduled to be collected in the week of June 20.

Sampling Methods and Procedures

Sampling methods and procedures for taking surface and shallow subsurface soil samples using a hand-drive sampler are presented in our May 24, 1983 work plan.

Sampling methods and procedures for taking deep subsurface soil samples using a truck-mounted drilling rig are described in this work plan. The drilling rig is equipped with 8-inch outside diameter hollow-stem continuous flight augers. Use of the hollow-stem augers will ensure sampling integrity by preventing soils from caving to the bottom of the boring during drilling. Samples will be taken in each boring at ground level, at 6-inch increments to a depth of 5 feet, at 2.5-foot increments to a depth of 10 feet, and at 5-foot increments to a depth of 20 feet. Therefore, 14 samples will be taken at each boring location.

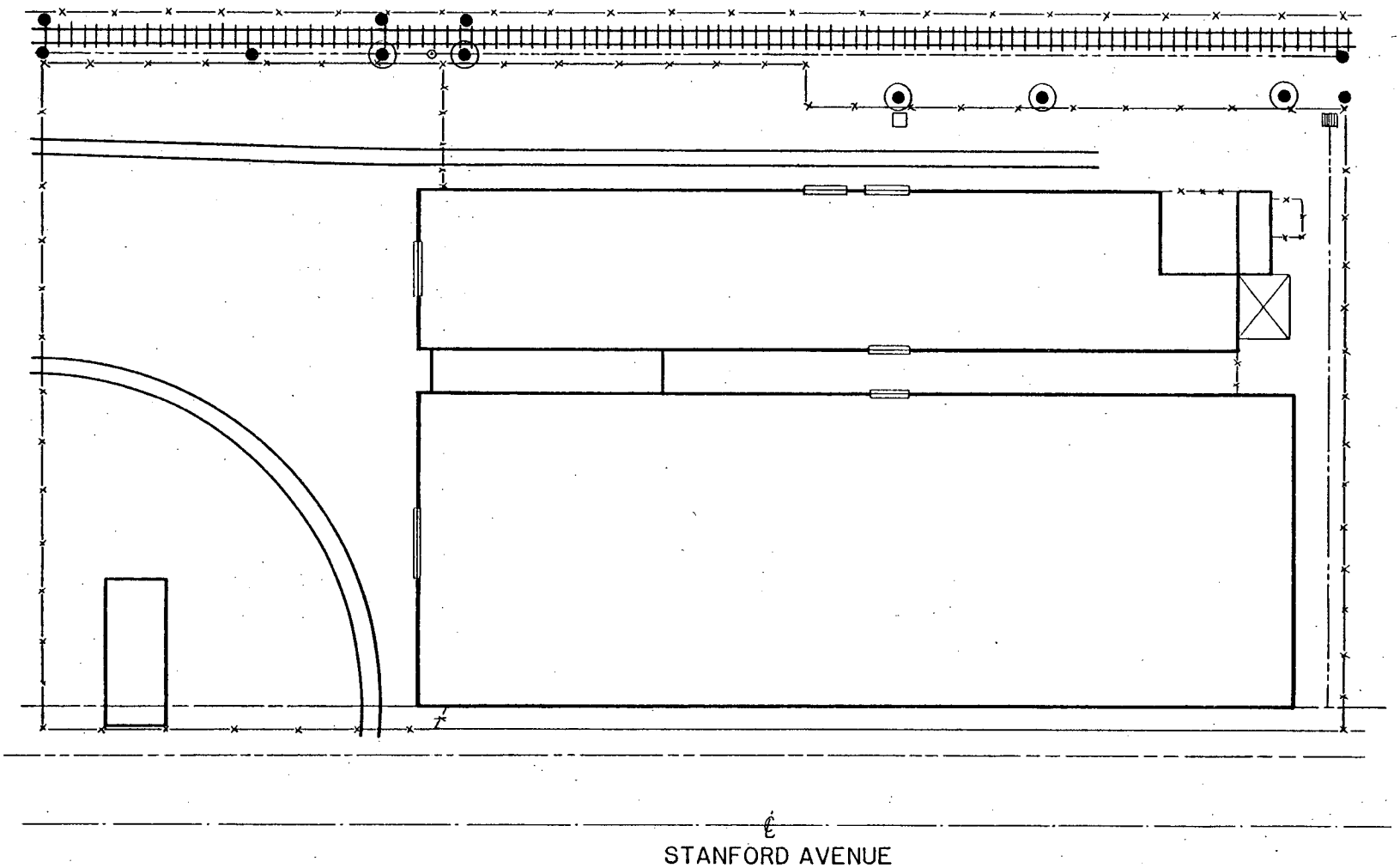


Figure 2 Surface and Shallow Subsurface, and Deep Subsurface Soil Sampling Locations

Before and after the drilling of each boring, the hollow-stem augers will be steam-cleaned and rinsed with hexane. Rinsed waters will be collected in 55-gallon steel drums. Cuttings from each boring will also be collected and placed in 55-gallon steel drums. Each drum will be marked and sealed on-site. These drums will be disposed in an appropriate manner. Completed borings will be backfilled with clean, imported soil and sealed with bentonite to prevent cross contamination and infiltration.

Soil samples will be collected by pushing a thin-walled Shelby-tube sampler or by driving a 2.5-inch inside diameter by 12-inch long sleeve-lined split-barrel sampler. The Shelby-tube sampler will be 24 inches in length, 3 inches in diameter, and constructed of seamless steel. A sufficient number of samplers will be provided to allow utilization of a separate sampler for each soil sample taken. The samplers will be cleaned with soap and warm water, and rinsed with hexane to prevent introduction of any contaminants into the soil samples.

Prior to inserting the sampler into the boring through the hollow-stem augers, the end of the sampler will be covered with aluminum foil and lightly taped to prevent any contamination of the inside of the sampler from within the hollow-stem augers. Upon removal of the sampler containing the soil sample from the boring, the Shelby-tube or sleeve liner will be capped with aluminum foil, covered with a plastic cap, and taped to provide an air-tight seal.

Each sample will be appropriately marked on-site to show the date, job number, and depth. Each sample will receive a consecutive identification number which will be recorded in the log and maintained throughout transport, laboratory analysis, and reporting.

The field work will be performed by an experienced geologist, registered in the State of California, and a qualified technician. The geologist will supervise the work and create documentation of the field operations and the technician will collect the samples.

APPENDIX C

LOG SHEETS OF SOIL BORING

Unified Soil Classification

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS — MORE THAN 50% RETAINED ON NO. 200 SIEVE*	GRAVELS — 50% OR MORE OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS	GW	WELL-GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS — MORE THAN 50% OF COARSE FRACTION PASSES NO. 4 SIEVE	CLEAN SANDS	SW	WELL-GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE-GRAINED SOILS — 50% OR MORE PASSES NO. 200 SIEVE*	SILTS AND CLAYS — LIQUID LIMIT 50% OR LESS		ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS — LIQUID LIMIT GREATER THAN 50%		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDS OR SILTS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY
			PT	PEAT, MUCK AND OTHER HIGHLY ORGANIC SOILS

* BASED ON THE MATERIAL PASSING THE 3 INCH (75 mm) SIEVE.

BC BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL

BORING / WELL: B-1	PROJECT:	JOB NO.: 1610	SHEET: 1 / 2

X BACKFILLED SOIL BORING ___ MONITOR WELL ___ MULTI-CASED WELL

DRILL CONTRACTOR: Calif. Testing Laboratories
DRILL RIG: Mobile B61
BC PERSONNEL: M.Lee, Nottingham, R.Schneider

ELEVATIONS
DATUM:
GROUND SURFACE:
TOP WELL CASING:

HOLE DIAMETER: 8 inch auger
SAMPLE TYPE: 2 inch X 16 inch drive
DRIVE ENERGY: 140 lb hammer w/ 30 inch drop

	TIME	DATE
START:	12:10 pm	9-2-83
FINISH:	1:30 pm	9-2-83
BACKFILL:	8:00 pm	9-2-83
FINISH WELL:	-------	-----

SUBSURFACE FLUIDS / GROUNDWATER

DEPTH FROM GROUND	TIME	DATE
NONE		

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
1	X	1	B1-1	SM	Dark brown silty sand - stain
	X	8			
	X	7			
2	X	2	B1-2		
	X	4			
3	X	5	B1-3		
	X	5			
4	X	5	B1-4		Medium brown silty sand
	X	4			
5	X	6	B1-5	SC	Medium brown silty sand, some clay
	X	9			
6					
7					
	X	7	B1-6	CL	Light to medium brown, fine silty clay
8	X	10			
9					
10	X	5	B1-7		Light brown, fine sandy clay
	X	8			
11					
				SC	
12					
					Light brown clayey fine sand
13					
14					
15					

BORING WELL NO. 1610/B-1

BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL (CONTINUED)

BORING / WELL: B-1	PROJECT:	JOB NO.: 1610	SHEET: 2 / 2

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
15	X	4	B1-8	SC	Light brown clayey fine sand
16	X	13			
17					
18					
19				CL	Light brown sandy clay
20	X	4	B1-9		
21	X	7			Light brown fine sandy clay
22					BOTTOM OF BORING
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

BORING WELL NO. 1610/B-1

BC BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL

BORING / WELL: B-2	PROJECT:	JOB NO.: 1610	SHEET: 1 / 2

X BACKFILLED SOIL BORING ___ MONITOR WELL ___ MULTI-CASED WELL

DRILL CONTRACTOR: Calif.Testing Laboratories
DRILL RIG: Mobile B61
BC PERSONNEL: M.Lee, Nottingham, R.Schneider

HOLE DIAMETER: 8 inch auger
SAMPLE TYPE: 2 inch X 6 inch drive
DRIVE ENERGY: 140 lb hammer w/ 30 inch drop

	TIME	DATE
START:	2:10 pm	8-31-83
FINISH:	4:00 pm	8-31-83
BACKFILL:	4:15 pm	8-31-83
FINISH WELL:	-------	-------

ELEVATIONS

DATUM:
GROUND SURFACE:
TOP WELL CASING:

SUBSURFACE FLUIDS / GROUNDWATER

DEPTH FROM GROUND	TIME	DATE
NONE		

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
1	X	2			
	X	4	B2-1	ML	Oily dark brown silt - lots of oil
	X	5			
2	X	4	B2-2	SM	Dark brown fine sandy silt - oily
	X	5			
3	X	3	B2-3		Dark brown fine sand
	X	3			
4	X	3	B2-4		Dark brown fine silty sand
	X	5			
5	X	3	B2-5		
	X	5			
6					
	X	5	B2-6		Dark brown silty sand
7	X	8			
8					
9					
	X	6	B2-7	SC	Brown fine silty sands, increasing clay content
10	X	6			
11					
12					
13					
14					
	X	8	B2-8	CL	Brown sandy clay
15	X	10			

BORING WELL NO. 1610/B-2

BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL (CONTINUED)

BORING / WELL: B-2	PROJECT:	JOB NO.: 1610	SHEET: 2 / 2

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
15				CL	Brown clays with silty sand
16					
17					
18					
19	X	7	B2-9		
	X	8			Brown clay with fine sand
20					BOTTOM OF BORING
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

BORING WELL NO. 1610/B-2

BC BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL

BORING / WELL: B-4	PROJECT:	JOB NO.: 1610	SHEET: 1 / 2

X BACKFILLED SOIL BORING ___ MONITOR WELL ___ MULTI-CASED WELL

DRILL CONTRACTOR: Calif. Testing Laboratories
DRILL RIG: Mobile B61
BC PERSONNEL: Nottingham, R. Schneider

ELEVATIONS
DATUM:
GROUND SURFACE:
TOP WELL CASING:

HOLE DIAMETER: 8 inch auger
SAMPLE TYPE: 2 inch X 16 inch drive
DRIVE ENERGY: 140 lb hammer w/ 30 inch drop

	TIME	DATE
START:	1:30 pm	9-2-83
FINISH:	2:15 pm	9-2-83
BACKFILL:	8:00 pm	9-2-83
FINISH WELL:	-------	------

SUBSURFACE FLUIDS / GROUNDWATER

DEPTH FROM GROUND	TIME	DATE
NONE		

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
1	X	11	B4-1	SM	Dark brown to black silty sand - stain
	X	4			
	X	2			
2	X	2	B4-2		Dark brown silty sand
	X	2			
3	X	3	B4-3		Medium brown silty sand
	X	2			
4	X	1	B4-4		
	X	3			
5	X	5	B4-5		Light brown silty sand
	X	10			
6					
7	X	4	B4-6		
	X	5			
8				SC	Light brown clayey sand
9					
10	X	5	B4-7		
	X	6			
11					
12					
13					
14					
15					

BORING WELL NO. 1610/B-4

BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL (CONTINUED)

BORING / WELL: B-4	PROJECT:	JOB NO.: 1610	SHEET: 2 / 2

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
15	X	5	B4-8	SC	Light brown clayey fine sand
16	X	10			
17					
18					
19					
20	X	5	B4-9		
21	X	8			
22					BOTTOM OF BORING
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

BORING WELL NO. 1610/B-4

BC BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL

BORING / WELL: B5 & B5-A	PROJECT:	JOB NO.: 1610	SHEET: 1 / 2

X BACKFILLED SOIL BORING — MONITOR WELL — MULTI-CASED WELL

DRILL CONTRACTOR: Calif. Testing Laboratories
DRILL RIG: Mobile B61
BC PERSONNEL: Nottingham, R. Schneider (Lee on B5-A)

HOLE DIAMETER: 8 inch auger
SAMPLE TYPE: 2 inch X 16 inch drive
DRIVE ENERGY: 140 ob hammer w/ 30 inch drop

	TIME	DATE
START:	9:40 am(B5)	3:00 pm 9-2-83
FINISH:	11:15 am(B5)	4:30 pm 9-2-83
BACKFILL:		8:30 pm 9-2-83
FINISH WELL:		------- ------

ELEVATIONS

DATUM:
GROUND SURFACE:
TOP WELL CASING:

SUBSURFACE FLUIDS / GROUNDWATER

DEPTH FROM GROUND	TIME	DATE
NONE		

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
1	X	3	B5-1	SM	Top soil grass
	X	8			Dark brown silty sand stain
	X	13			
2	X	8	B5-2		Medium brown silty sand
	X	8			
3	X	3	B5-3		
	X	3			
4	X	2	B5-4		
	X	3			
5	X	4	B5-5		Bottom of B5. Move 2 feet south to B5A (6 inch sewer line in B5)
	X	3			
6					
7					
	X	4	B5-6		Light brown silty sand with some clay
8	X	8			
9					
10					
	X	4	B5-7	SC	Light brown clayey sand
11	X	8			
12					
13					
14					
15					

BORING WELL NO. 1610 B5 & B5-A

BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL (CONTINUED)

BORING / WELL: B5-A	PROJECT:	JOB NO.: 1610	SHEET: 2 / 2

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
15	X	5	B5-8	SC	Light brown clayey sand
16	X	7			
17					
18					
19					
20					Medium brown very clayey sands
21	X	5	B5-9		
	X	7			
22					BOTTOM OF BORING
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

BORING WELL NO. 1610/B5-A

BC BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL

BORING / WELL: B-6	PROJECT:	JOB NO.: 1610	SHEET: 1 / 2

X BACKFILLED SOIL BORING — MONITOR WELL — MULTI-CASED WELL

DRILL CONTRACTOR: Calif.Testing Laboratories
DRILL RIG: Mobile B61
BC PERSONNEL: M.Lee,Nottingham,R.Schneider

HOLE DIAMETER: 8 inch auger
SAMPLE TYPE: 2 inch X 16 inch drive
DRIVE ENERGY: 140 lb hammer w/ 30 inch drop

	TIME	DATE
START:	7:20 am	9-1-83
FINISH:	2:30 pm	9-1-83
BACKFILL:	3:00 pm	9-1-83
FINISH WELL:	-------	------

ELEVATIONS

DATUM:
GROUND SURFACE:
TOP WELL CASING:

SUBSURFACE FLUIDS / GROUNDWATER

DEPTH FROM GROUND	TIME	DATE
NONE		

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
1	X	6	B6-1	ML	Trash and silt - stained, black and oily
	X	10			
	X	10			
2	X	4	B6-2	SC	Black silty sand, some clay
	X	3			
3	X	2	B6-3		Dark brown fine silty sand, some clay
	X	2			
4	X	3	B6-4	SM	Medium brown silty sands
	X	3			
5	X	4	B6-5		
	X	5			
6					
	X	8	B6-6		
7	X	9			
8				ML	Light brown silty clayey fine sand
9					
	X	4	B6-7	SW	Clean light brown sand
10	X	5			
11					
12					
13					
14	X	4	B6-8		
	X	6			
15					

BORING WELL NO. 1610/B-6

BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL (CONTINUED)

BORING / WELL: B-6	PROJECT:	JOB NO.: 1610	SHEET: 2 / 2

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
15				SW	
16				SC	Light brown sand with very little clay
17					
18					
19				CL	Light brown clay with fine sand
	X	8	B6-9		
20	X	9			BOTTOM OF BORING
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

BORING WELL NO. 1610/B-6

BC BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL

BORING / WELL: B-7	PROJECT:	JOB NO.: 1610	SHEET: 1 / 2

X BACKFILLED SOIL BORING — MONITOR WELL — MULTI-CASED WELL

DRILL CONTRACTOR: Calif.Testing Laboratories
DRILL RIG: Mobile B61
BC PERSONNEL: M.Lee,Nottingham,R.Schneider

HOLE DIAMETER: 8 inch auger
SAMPLE TYPE: 2 inch X 16 inch drive
DRIVE ENERGY: 140 lb hammer w/ 30 inch drop

	TIME	DATE
START:	4:30 pm	9-2-83
FINISH:	6:30 pm	9-2-83
BACKFILL:	8:00 pm	9-2-83
FINISH WELL:	-------	------

ELEVATIONS

DATUM:
GROUND SURFACE:
TOP WELL CASING:

SUBSURFACE FLUIDS / GROUNDWATER

DEPTH FROM GROUND	TIME	DATE
NONE		

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
1	X	11	B7-1	SM	Medium brown silty sand
	X	11			
	X	13			
2	X	5	B7-2		Medium brown fine silty sand
	X	7			
3	X	3	B7-3		
	X	5			
4	X	2	B7-4		
	X	3			
5	X	1			
	X	3			
6					
7					Medium brown silty sand with some clay
	X	6	B7-6		
8	X	7			
				SC	Medium brown clayey sand
9					
10					
	X	7	B7-7		
11	X	9			
12					
13					
14					
15					

BORING WELL NO. 1610/B-7

BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL (CONTINUED)

BORING / WELL: B-7	PROJECT:	JOB NO.: 1610	SHEET: 2 / 2

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
15	X		B7-8	SC	Medium brown clayey sand
16	X				
17					
18					
19					
20	X		B7-9		
21	X				BOTTOM OF BORING
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

BORING WELL NO. 1610/B-7

BC BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL

BORING / WELL: B-8	PROJECT:	JOB NO.: 1610	SHEET: 1 / 2

X BACKFILLED SOIL BORING ___ MONITOR WELL ___ MULTI-CASED WELL

DRILL CONTRACTOR: Calif.Testing Laboratories
DRILL RIG: Mobile B61
BC PERSONNEL: Nottingham, R. Schneider

HOLE DIAMETER: 8 inch auger
SAMPLE TYPE: 2 inch X 16 inch drive
DRIVE ENERGY: 140 lb hammer w/ 30 inch drop

	TIME	DATE
START:	8:15 am	9-2-83
FINISH:	9:10 am	9-2-83
BACKFILL:	8:00 pm	9-2-83
FINISH WELL:	-------	------

ELEVATIONS

DATUM:
GROUND SURFACE:
TOP WELL CASING:

SUBSURFACE FLUIDS / GROUNDWATER

DEPTH FROM GROUND	TIME	DATE
NONE		

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
1	X	2			
	X	2	B8-1	ML	Medium to dark brown sandy silt
	X	8			
2	X	5	B8-2	SM	Dark brown silty sand
	X	3			
3	X	3	B8-3		Dark brown silty sand, trace clay
	X	2			
4	X	2	B8-4		
	X	3			
5	X	2	B8-5		Dark brown silty, clayey sand
	X	4			
6					
7					
	X	4	B8-6	CL	Medium brown fine sandy clay
8	X	10			
9					
10					
	X	4	B8-7		Light to medium clay with fine sand
11	X	8			
12					
13					
14					
15					

BORING WELL NO. 1610/B-8

BC BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL (CONTINUED)

BORING / WELL: B-8	PROJECT:	JOB NO.: 1610	SHEET: 2 / 2

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
15	X	4	B8-8	CL	Light brown clay with fine sand
16	X	6			
17					
18					
19					
20	X	3	B8-9		
21	X	4			BOTTOM OF BORING
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

BORING WELL NO. 1610/B-8

BC BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL

BORING / WELL: B-9	PROJECT:	JOB NO.: 1610	SHEET: 1 / 2

X BACKFILLED SOIL BORING ___ MONITOR WELL ___ MULTI-CASED WELL

DRILL CONTRACTOR: Calif.Testing Laboratories
DRILL RIG: Mobile B61
BC PERSONNEL: Nottingham, Schneider

ELEVATIONS
DATUM:
GROUND SURFACE:
TOP WELL CASING:

HOLE DIAMETER: 8 inch auger
SAMPLE TYPE: 2 inch X 16 inch drive
DRIVE ENERGY: 140 lb hammer w/ 30 inch drop

	TIME	DATE
START:	1:30 pm	9-1-83
FINISH:	2:30 pm	9-1-83
BACKFILL:	8:00 pm	9-2-83
FINISH WELL:	-------	------

SUBSURFACE FLUIDS / GROUNDWATER

DEPTH FROM GROUND	TIME	DATE
NONE		

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
1	X	1	B9-1	ML	Black silty soil
	X	3			
	X	4	B9-2		Dark brown sandy silt
2	X	6			
	X	2	B9-3	SM	Medium brown silty sand
3	X	3			
	X	1	B9-4		Dark brown silty sand
4	X	3			
	X	3	B9-5		
5	X	5			
6					
7					
	X	4	B9-6		Medium brown silty sand, some clay
8	X	7			
9					
10					
	X	6	B9-7	SC	Medium brown silty sand, more clay
11	X	8			
12					
13					
14					
15					

BORING WELL NO. 1610/B-9

BROWN AND CALDWELL

LOG OF SOIL BORING OR MONITOR WELL (CONTINUED)

BORING / WELL: B-9	PROJECT:	JOB NO.: 1610	SHEET: 2 / 2

DEPTH, FT.	SAMPLE	BLOWS PER 6 IN.	SAMPLE NO.	USC SOIL TYPE	DESCRIPTION OF SUBSURFACE MATERIALS
15	X	4	B9-8	SC	Medium brown silty sand with clay
16	x	8			
17					
18					
19				CL	Brown clay with some silty sand
	X	4	B9-9		
20	X	4			
21					BOTTOM OF BORING
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					

BORING WELL NO. 1610/B-9

APPENDIX D

LABORATORY REPORTS

BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

June 15, 1983

Laboratory No. 83-05-289

Brown & Caldwell - Pasadena
150 South Arroyo Parkway
Pasadena, California 91109

Attention: Mike Lee

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
05-289-1	1.1	1242	18,000	4,000
05-289-2	1.2	1242	27,000	4,000
05-289-3	2.1	1242	27,000	4,000
05-289-4	2.2	1242	32,000	4,000
05-289-5	2.3	1242	11,000	4,000
05-289-6	2.4	1242	32,000	4,000
05-289-7	5.1	1260	1,800	400
05-289-8	5.2	1260	5,500	400
05-289-9	7.1	1260	340	40
	7.1	1242	400	40
	7.1	Total PCB	740	---
05-289-10	10.1	1260	120	40
05-289-11	12.1	1260	93	40
05-289-12	14.1	1242	1,500	400
	14.1	1260	2,400	400
	14.1	Total PCB	3,900	---
05-289-13	16.1	1260	2,200	400
05-289-14	16.2	1260	8,700	400
05-289-15	17.1	1260	12,000	4,000
05-289-16	17.2	1260	56,000	20,000
05-289-17	17.3	1260	17,000	4,000

Laboratory No. 83-05-289

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
05-289-18	17.4	1260	2,200	400
05-289-19	18.1	1260	2,100	400
05-289-20	18.2	1260	8,200	400
05-289-21	20.1	1260	1,100	400
05-289-22	20.2	1260	16,000	4,000
05-289-24	Dust #2	1260	860	800

Log Number	Sample Description	Aroclor	Concentration $\mu g/M^3$	Detection Limit
05-289-23	Air	---	None Detected	0.008

Aroclors 1016 through 1262 would have been reported had they appeared at or above the detection limits noted above.

Reported by Edward Wilson

Edward Wilson
Laboratory Director

jt

BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

D. H. CALDWELL, PE Chairman
T. V. LUTGE, PE President
R. C. ABERLEY, PE Exec Vice Pres
S. A. FISHER, Vice Pres

June 23, 1983

Laboratory No. P83-06-126

Brown and Caldwell - Pasadena
150 South Arroyo Parkway
Pasadena, California 91109

Attention: Mike Lee

POLYCHLORINATED BIPHENYL ANALYSIS OF DUST

Date Sampled: Not Given
Date Received 06-21-83
Date Extracted: 06-21-83

Log Number	Sample Description/Identification	Concentration: mg/kg
06-126-1	Dust Sample #4	Aroclor 1260: 100

Aroclors 1016 through 1262 would have been reported had they appeared at or above the detection limit of 25 mg/kg.

Reported by Edward Wilson
Edward Wilson
Laboratory Director

jt

BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

D. H. CALDWELL, PE Chairman
T. V. LUTGE, PE President
R. C. ABERLEY, PE Exec Vice Pres
S. A. FISHER, Vice Pres

July 11, 1983

Laboratory No. 83-06-148

Brown & Caldwell
150 South Arroyo Parkway
Pasadena, California 91109

Date Sampled: June 22, 1983
Date Received: June 22, 1983

Attention: Mike Lee

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
06-148-2	22.1	1260	21	1
06-148-3	23.1	1260	200	10
06-148-4	23.2	1260	17	1
06-148-5	24.1	None Detected	---	1
06-148-6	24.2	None Detected	---	1
06-148-7	25.1	None Detected	---	1
06-148-10	27.1	1260	23	1
06-148-11	27.2	1260	15	1
06-148-12	28.1	1260	48	1
06-148-13	29.1	1260	3500	100
	29.1	1242	4000	100
	29.1	Total PCB	7500	---
06-148-14	9.1	1260	4100	100
06-148-15	10.2	1260	130	10
06-148-16	12.2	1260	840	100
06-148-17	13.1	1260	8700	100
	13.1	1242	8300	100
	13.1	Total PCB	17,000	---
06-148-18	15.1	1260	1100	10
06-148-19	19.1	1260	800	10

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
06-148-20	Air Sample #2	None Detected	---	0.008 $\mu g/M^3$
06-148-21	Wipe Sample Cheese Cloth #1	1260	0.6 $\mu g/ft^2$	0.001
06-148-22	Wipe Sample Cheese Cloth #2	1260	0.8 $\mu g/ft^2$	0.001
06-148-23	Wipe Sample Cheese Cloth #3	1260	2.9 $\mu g/ft^2$	0.001
06-148-24	Oil Sample #2	1242	1000	100
06-148-25	Dust Sample #5	1260	330	10

Reported by Edward Wilson

Edward Wilson
Laboratory Director

jt

BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

D. H. CALDWELL, PE Chairman
T. V. LUTGE, PE President
R. C. ABERLEY, PE Exec Vice Pres
S. A. FISHER, Vice Pres

July 27, 1983

Laboratory No. P83-07-122

Brown and Caldwell - Pasadena
150 South Arroyo Parkway
Pasadena, California 91109

Attention: Mike Lee

POLYCHLORINATED BIPHENYL ANALYSIS OF SOIL

Date Sampled: 06-22-83
Date Received: 06-22-83
Date Extracted: 07-25-83

Log Number	Sample Description/Identification	Concentration:	mg/kg
07-122-1	8.1	Aroclor 1260:	390
07-122-2	11.1	Aroclor 1260:	8.0
07-122-3	22.2	Aroclor 1260:	3.0
07-122-4	28.2	Aroclor 1260:	8.4
07-122-5	30.1	Aroclor 1260:	150
07-122-6	30.2	Aroclor 1260:	0.6

Aroclors 1016 trhough 1262 would have been reported had they appeared at or above the following detection limits:

07-122-1 -- 100 mg/kg
07-122-2 -- 5 mg/kg
07-122-3 -- 5 mg/kg
07-122-4 -- 5 mg/kg
07-122-5 -- 100 mg/kg
07-122-6 -- 1 mg/kg

Reported by Edward Wilson
Edward Wilson
Laboratory Director

jt

BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

D. H. CALDWELL, PE Chairman
T. V. LUTGE, PE President
R. C. ABERLEY, PE Exec Vice Pres
S. A. FISHER, Vice Pres

August 22, 1983

Lab No. P83-08-065
Job No. 1610-16

Brown and Caldwell
150 South Arroyo Parkway
Pasadena, California 91109

Attention: Mike Lee

POLYCHLORINATED BIPHENYL ANALYSIS OF DUST

Date Sampled: June 22, 1983
Date Received: June 22, 1983
Date Extracted: August 9, 1983

Log Number	Sample Description/Identification	Concentration: mg/kg
08-065-1	Dust from Wipe Area #2	Aroclor 1260: 620[a] 1.3 mg/ft^2
08-065-2	Dust from Wipe Area #3	Aroclor 1260: 95[b] 0.044 mg/ft^2

a
Aroclors 1016 through 1262 would have been reported had they appeared at or above the detection limit of 100 mg/kg.

b
Aroclors 1016 through 1262 would have been reported had they appeared at or above the detection limit of 10 mg/kg.

Reported by: Edward Wilson
Edward Wilson
Laboratory Director

EW:lah

BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

D. H. CALDWELL, PE Chairman
T. V. LUTGE, PE President
R. C. ABERLEY, PE Exec Vice Pres
S. A. FISHER, Vice Pres

September 21, 1983

Laboratory Numbers: P83-09-038
P83-09-046
P83-09-048
P83-09-050
P83-09-051
P83-09-052
P83-09-058
P83-09-060
P83-09-027

Brown and Caldwell
150 South Arroyo Parkway
Pasadena, California 91109

Attention: Mike Lee

Date Sampled: Various
Date Received: Various
Date Extracted: Various

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-038-2	B7, 1.2	None Detected	---	1
09-038-4	B7, 2.3	None Detected	---	1
09-038-6	B7, 3.3	1260	8.5	3
09-038-10	B7, 5.3	None Detected	---	1
09-038-12	B7, 6.3	None Detected	---	1
09-046-2	B9, 1.3	1242	72	
		1260	210	100
		Total PCB	280	
09-046-4	B9, 2.3	1260	2.0	1
09-046-6	B9, 3.3	None Detected	---	1
09-046-10	B9, 5.3	None Detected	---	1
09-046-14	B9, 7.3	None Detected	---	1
09-046-16	B9, 8.3	None Detected	---	1
09-048-2	B5, 1.3	1260	1.6	1
09-048-4	B5, 2.3	1260	2.9	1
09-048-6	B5, 3.3	None Detected	---	1
09-048-10	B5, 5.3	1260	4.5	2
09-048-12	B5, 6.3	None Detected	---	1
09-048-14	B5, 7.3	None Detected	---	1

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-050-2	B4, 1.3	1242	5500	200
		1260	140	
		Total PCB	5640	
09-050-4	B4, 2.3	1242	1.5	1
		1260	1.1	
		Total PCB	2.6	
09-050-6	B4, 3.3	1242	8.6	5
		1260	2.1	
		Total PCB	11	
09-050-8	B4, 5.3	None Detected	---	1
09-050-10	B4, 6.3	None Detected	---	1
09-051-2	B8, 1.3	1260	3.0	1
09-051-4	B8, 2.3	1242	9.0	1
		1260	1.0	
		Total PCB	10	
09-051-6	B8, 3.3	None Detected	---	1
09-051-10	B8, 5.3	None Detected	---	1
09-051-12	B8, 6.3	None Detected	---	1
09-051-14	B8, 7.3	None Detected	---	1
09-051-16	B8, 8.3	None Detected	---	1
09-052-2	B6, 1.3	1260	130	50
09-052-4	B6, 2.3	1260	2.6	2
09-052-6	B6, 3.3	None Detected	---	1
09-052-12	B6, 6.3	None Detected	---	1
09-052-14	B6, 7.3	None Detected	---	1
09-052-16	B6, 8.3	None Detected	---	1
09-052-18	B6, 9.3	None Detected	---	1
09-058-1	Surface Soil 31.1, 0-6"	1260	190	50
09-058-2	Surface Soil 31.2, 6-12"	1260	9.1	2.5

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-060-2	B1, 1.3	1260	9.9	5
09-060-4	B1, 2.3	1260	9.6	5
09-060-6	B1, 3.3	1260	7.0	5
09-060-10	B1, 5.3	None Detected	---	1
09-060-12	B1, 6.3	None Detected	---	1
09-060-14	B1, 7.3	None Detected	---	1
09-060-16	B1 8.3	None Detected	---	1
09-060-18	B1, 9.3	None Detected	---	1
09-027-2	B2, 1.3	1242	16,000	10,000
09-027-4	B2, 2.3	1242	100	25
09-027-6	B2, 3.3	1242	1000	250
09-027-8	B2, 4.3	1242	2.4	1
09-027-10	B2, 5.3	1242	2.9	2
09-027-12	B2, 6.3	1242	37	10
09-027-14	B2, 7.3	1242	5.2	2
09-027-16	B2, 8.3	None Detected	---	1
09-027-18	B2, 9.3	None Detected	---	1

Aroclors 1016 through 1262 would have been reported had they appeared at or above the detection limits shown.

Reported by Edward Wilson
Edward Wilson
Laboratory Director

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BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

D. H. CALDWELL, PE Chairman
T. V. LUTGE, PE President
R. C. ABERLEY, PE Exec Vice Pres
S. A. FISHER, Vice Pres

September 28, 1983

Brown and Caldwell
150 South Arroyo Parkway
Pasadena, California 91109

REVISED REPORT

Attention: Mike Lee

POLYCHLORINATED BIPHENYL ANALYSIS OF SOIL

Date Sampled: August 31, 1983
Date Received: August 31, 1983
Date Extracted: September 16, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-027-2	B2, 1.3	1242	16,000	10,000
09-027-4	B2, 2.3	1242	100	25
09-027-6	B2, 3.3	1242	1,000	250
09-027-8	B2, 4.3	1242	2.4	1
09-027-10	B2, 5.3	1242	2.9	2
09-027-12	B2, 6.3	1242	37	10
09-027-14	B2, 7.3	1242	5.2	2
09-027-16	B2, 8.3	None Detected	--	1
09-027-18	B2, 9.3	None Detected	--	1

Date Sampled: September 2, 1983
Date Received: September 2, 1983
Date Extracted: September 14, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-038-2	B7, 1.2	None Detected	--	1
09-038-4	B7, 2.3	None Detected	--	1
09-038-6	B7, 3.3	1260	8.5	3
09-038-10	B7, 5.3	None Detected	--	1
09-038-12	B7, 6.3	None Detected	--	1

Date Sampled: September 1, 1983
Date Received: September 1, 1983
Date Extracted: September 17, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-046-2	B9, 1.3	1242	72	
		1260	210	
		Total PCB	280	100
09-046-4	B9, 2.3	1260	2.0	1
09-046-6	B9, 3.3	None Detected	--	1
09-046-10	B9, 5.3	None Detected	--	1
09-046-14	B9, 7.3	None Detected	--	1
09-046-16	B9, 8.3	None Detected	--	1

Date Sampled: September 1, 1983
Date Received: September 1, 1983
Date Extracted: September 13, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-048-2	B5, 1.3	1260	1.6	1
09-048-4	B5, 2.3	1260	2.9	1
09-048-6	B5, 3.3	None Detected	--	1
09-048-10	B5, 5.3	1260	4.5	2
09-048-12	B5, 6.3	None Detected	--	1
09-048-14	B5, 7.3	None Detected	--	1

Date Sampled: September 2, 1983
Date Received: September 2, 1983
Date Extracted: September 17, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-050-2	B4, 1.3	1242	5500	200
		1260	140	
		Total PCB	5600	
09-050-4	B4, 2.3	1242	1.5	1
		1260	1.1	
		Total PCB	2.6	

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-050-6	B4, 3.3	1242	8.6	5
		1260	2.1	
		Total PCB	11	
09-050-8	B4, 5.3	None Detected	--	1
09-050-10	B4, 6.3	None Detected	--	1

Date Sampled: September 2, 1983
Date Received: September 2, 1983
Date Extracted: September 16, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-051-2	B8, 1.3	1260	3.0	1
09-051-4	B8, 2.3	1242	9.0	
		1260	1.0	
		Total PCB	10	
09-051-6	B8, 3.3	None Detected	--	1
09-051-10	B8, 5.3	None Detected	--	1
09-051-12	B8, 6.3	None Detected	--	1
09-051-14	B8, 7.3	None Detected	--	1
09-051-16	B8, 8.3	None Detected	--	1

Date Sampled: September 1, 1983
Date Received: September 1, 1983
Date Extracted: September 14, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-052-2	B6, 1.3	1260	130	50
09-052-4	B6, 2.3	1260	2.6	2
09-052-6	B6, 3.3	None Detected	--	1
09-052-12	B6, 6.3	None Detected	--	1
09-052-14	B6, 7.3	None Detected	--	1
09-052-16	B6, 8.3	None Detected	--	1
09-052-18	B6, 9.3	None Detected	--	1

Date Sampled: September 1, 1983
Date Received: September 1, 1983
Date Extracted: September 14, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-058-1	Surface Soil 31.1, 0-6"	1242	190	50
09-058-2	Surface Soil 31.2, 6-12"	1242	9.1	2.5

Date Sampled: September 2, 1983
Date Received: September 2, 1983
Date Extracted: September 13, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-060-2	B1, 1.3	1260	9.9	5
09-060-4	B1, 2.3	1260	9.6	5
09-060-6	B1, 3.3	1260	7.0	5
09-060-10	B1, 5.3	None Detected	--	1
09-060-12	B1, 6.3	None Detected	--	1
09-060-14	B1, 7.3	None Detected	--	1
09-060-16	B1, 8.3	None Detected	--	1
09-060-18	B1, 9.3	None Detected	--	1

Aroclors 1016 through 1262 would have been reported had they appeared at or above the detection limits shown.

Reported by: Edward Wilson
Edward Wilson
Laboratory Director

lah

BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

D. H. CALDWELL, PE Chairman
T. V. LUTGE, PE President
R. C. ABERLEY, PE Exec Vice Pres
S. A. FISHER, Vice Pres

October 5, 1983

Lab No. P83-09-218
Job No. 1610

Brown and Caldwell
150 South Arroyo Parkway
Pasadena, California 91109

Attention: Mike Lee

POLYCHLORINATED BIPHENYL ANALYSIS OF SOIL

Date Sampled: September 1, 1983
Date Received: September 26, 1983
Date Extracted: September 30, 1983

Log Number	Sample Description/Identification	Concentration: mg/kg
09-218-1	Dust Parking Lot 8	Aroclor 1260: 35

Aroclors 1016 through 1262 would have been reported had they appeared at or above the detection limit of 25 mg/kg.

Reported by: Edward Wilson
Edward Wilson
Laboratory Director

lah

BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

D. H. CALDWELL, PE Chairman
T. V. LUTGE, PE President
R. C. ABERLEY, PE Exec Vice Pres
S. A. FISHER, Vice Pres

October 10, 1983 Lab No. P83-09-217

Brown and Caldwell
150 South Arroyo Parkway
Pasadena, California 91109

Attention: Mike Lee

POLYCHLORINATED BIPHENYL ANALYSIS OF WATER AND SOIL

Date Sampled: September 23, 1983
Date Received: September 23, 1983
Date Extracted: October 1, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-217-1	51.1	1260	37	25
09-217-3	52.1	1260	920	250
		1242	240	
		Total	1200	
09-217-9	56.1	1260	650	150
09-217-11	57.1	1260	16,000	3000
		1242	3,100	
		Total	18,000	
09-217-18	Scraping #1	1260	220	100
09-217-19	Scraping #2	1260	330	50
09-217-21	Scraping #21	1260	3.9	1
09-217-22	Scraping #22	1260	4.1	2
09-217-26	53.1	1260	670	100
		1242	150	
		Total	820	
09-217-27	53.2	1260	220	20
		1242	30	
		Total	250	
09-217-28	58.1	1260	170	50
		1242	160	
		Total	330	

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
09-217-29	58.2	1260	33	5
		1242	15	
		Total	48	

Log Number	Sample Description	Aroclor	Concentration mg/L	Detection Limit
09-217-30	Puddle No. 2	1260	0.14	0.03

Aroclors 1016 through 1262 would have been reported had they appeared at or above the detection limits shown.

Reported by: Edward Wilson
Edward Wilson
Laboratory Director

lah

BROWN AND CALDWELL
CONSULTING ENGINEERS

ANALYTICAL SERVICES DIVISION

D. H. CALDWELL, PE Chairman
T. V. LUTGE, PE President
R. C. ABERLEY, PE Exec Vice Pres
S. A. FISHER, Vice Pres

October 12, 1983

Lab No. P83-10-041
P.O. Job No. 1610

Brown and Caldwell
150 South Arroyo Parkway
Pasadena, California 91109

Attention: Mike Lee

POLYCHLORINATED BIPHENYL ANALYSIS OF SOIL

Date Sampled: October 5, 1983
Date Received: October 5, 1983
Date Extracted: October 6 and October 10, 1983

Log Number	Sample Description	Aroclor	Concentration mg/kg	Detection Limit
10-041-1	61.1 0-6"	1260	18	10
10-041-9	63.1 0-6"	1260	14	25
		1242	77	
		Total	91	
10-041-13	64.1 0-6"	1260	43	25
10-041-16	65.1 0-6"	1260	460	250
10-041-19	66.1 0-5"	1260	200	100
10-041-22	68.1 0-4"	1260	19	10

Aroclors 1016 through 1262 would have been reported had they appeared at or above the noted detection limits.

Reported by: Edward Wilson
Edward Wilson
Laboratory Director

lah